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ONLY SLIGHT DECREASE IN PRODUCTION OF PAPER

Reports Made by Identical Mills to American Paper and Pulp Association Showed a Falling Off of One Half of One Per Cent in May — The Total Net Tonnage Reported Was 455,708, While Net Tonnage on Hand at Close of Month Was 243,068—Statistical Table Showing Production of Various Grades of Pulp

Production of paper by identical mills reporting to the American Paper and Pulp Association and co-operating organizations showed a decrease of only ½ of 1 per cent in May from the April production, according to the monthly statistical summary of the paper and pulp industry.

The tonnage summary is prepared by the American Paper and Pulp Association with the co-operation of the Binders Board Manufacturers Association, News Print Service Bureau, Tissue Paper Manufacturers Association, Wrapping Paper Manufacturers Service Bureau, and Writing Paper Manufacturers Association. The figures for May are as follows:

Grade	Number of Mills	Production, Net Tons	Shipments, Net Tons	Stocks on Hand End of Month, Net Tons
News Print	65	134,219	131,289	34,479
Book	55	86,291	83,923	34,899
Paperboard	100	98,481	99,760	31,246
Wrapping	82	45,607	44,291	61,638
Bag	25	9,984	8,898	7,536
Fine	82	25,522	25,237	39,357
Tissue	42	10,749	9,598	9,437
Hanging	8	4,414	2,962	5,196
Felts	20	17,871	17,154	3,016
Other Grades	61	22,570	21,466	16,174
Total—All Grades	..	455,708	444,488	243,068

The statistical table below gives the number of mills reporting to the American Paper and Pulp Association and the U. S. Pulp Producers Association, and the data as to production of the various grades of pulp in May:

Grade	Number of Mills	Production, Net Tons	Shipments, Net Tons	Stocks on Hand End of Month, Net Tons
Ground Wood Pulp	103	120,512	2,145	163,267
Sulphite, News Grade	40	38,462	3,665	16,565
Sulphite, Bleached	20	19,726	2,690	3,444
Sulphite, Easy Bleaching	5	4,249	451	989
Sulphite, Mitscherlich	6	4,860	418	1,435
Sulphate Pulp	11	9,418	2,695	5,144
Soda Pulp	12	15,901	4,375	2,689
Other than Wood Pulp	2	96	90	4
Total—All Grades	..	213,224	16,529	193,537

Zellerbach Paper Co. Has Convention

SAN FRANCISCO, July 2, 1924.—After three strenuous days and nights, the Zellerbach Paper Company closed its Fourteenth Annual Convention, with a dinner dance in the Concert Room of the Palace Hotel, Wednesday evening, June 18.

The division managers were in attendance, together with their ladies, and the department heads were similarly accompanied, and in all, there were about one hundred that sat down to a most sumptuous repast. During the courses, dancing was enjoyed in the Rose Bowl, adjacent to the Concert Room.

The arrangements were absolutely faultless, and were attended to in the most infinitesimal detail by M. M. Baruh, one of the directors of the company. It has been truthfully said that Mr. Baruh as an entertainment manager is par excellence.

The toastmaster of the evening was M. R. Higgins, vice-president, who spoke in a very happy vein. As a surprise to those assembled, eight beautiful watches were presented to such employees as had served the company for a period of twenty-five years or more. Their names, together with the years of service follow herewith:

A. L. Neumann, 37 years; Charles Burgess, 28 years; L. A. Colton, 26 years; J. H. McDonald, 25 years; J. A. Enquist, 25 years; A. O'Farrell, 25 years; J. R. Davis, 25 years; Frank Wilson, 25 years.

Then, in order that the spirit of the evening be carried out to a most happy conclusion, M. M. Cohn, vice-president, on behalf of the directors and stockholders, presented to the president, Isadore Zellerbach, a most magnificent oil painting of Anthony Zellerbach, the founder of the company.

During the progress of the dinner, a number of speeches were made, and the president spoke in a most delightful manner of the organization, which he affectionately referred to as "his family."

Rollin C. Ayres, the advertising director, amused all with some clever Scotch and Japanese dialect stories, and the younger folks took a great deal of pleasure in exemplifying the art of Terpsichore in the Bowl.

It was the consensus of opinion of those present that it was a most delightful occasion, and one to be looked forward to next year.

New Station for Northwest and Southern States

By reason of an increase in the appropriation for silvical research recently granted by Congress, plans are being made in the Forest Service for the establishment of a forest experiment station in the Pacific Northwest to handle the forestry problems of Washington and Oregon. This station will be on a par with those established a year ago at St. Paul, Minn., and Amherst, Mass., to care for the Lake States and Northeastern regions. Its location has not yet been determined, but will probably be announced this fall by the Forest Service. Growth, management, and protection of Douglas fir and other coastal types will be the most pressing problem of the new station, in addition to questions pertaining to management of the yellow pine forests on the eastern side of the Cascade range.

Plans are also being made for a considerable enlargement of the forest research work in the southern pine region, where work has already been under way for three years. An additional appropriation will result in the extension of the Southern Forest Experiment Station's range of activities in its investigations of naval stores production and other problems peculiar to the southern pines region.

MONTREAL TAKES GRAUSTEIN DENIAL WITH GRAIN OF SALT

While Statement Made by International's President is Admitted "Technically Correct," Opinion Still Prevails That Negotiations for Riordon Co. Are Still Under Way—E. B. Eddy Co. Awards Contract for Rebuilding Sulphite Pulp Mill—Saguenay Bond Holders' Protective Committee Issues Interim Report—Important Workmen's Compensation Decision Handed Down.

[FROM OUR REGULAR CORRESPONDENT.]

MONTREAL, Que., July 7, 1924.—Since last week's dispatch, A. R. Graustein, new president of the International Paper Company, has issued a brief formal denial that his company has purchased the Riordon Pulp and Paper Company or has made plans for its financing. Notwithstanding this denial, the belief persists here in Montreal that there is something doing in the direction indicated and the old saying that "the market discounts developments well in advance" appears to be indicated by the fact that there has been a remarkable recovery in the price of Riordon bonds during the last three weeks. Some of them having gained as much as 18 points. Boston bondholders are said to be the chief parties in the informal negotiations which are said to have been carried on with the International Paper Company. The Graustein's denial is described here as "technically correct."

E. B. Eddy's New Mill

It is understood here that the E. B. Eddy Company, of Hull, has awarded the contract for rebuilding its sulphite pulp mill to the Charles Walmsley Company of Canada, Limited, Montreal. The company is spending about $3,000,000 on improvements and extensions and a considerable portion of this will be for machinery. The order will keep the Walmsley plant at Longueuil, Quebec, busy from four to five months. It is further stated that the Walmsley Company has enquiries before it covering a half dozen propositions involving between three to five million dollars of expenditure in each case.

Saguenay Pulp and Power

The bond holders' protective committee of the Saguenay Pulp and Power Company have issued an interim report, dated June 26, in which the work accomplished is outlined and pointing to an early solution of the task which was set for the committee in getting the affairs of the company into better financial shape. The report is a lengthy one, rehearsing the various matters and difficulties with which the committee have had to deal. In closing the reports says: "The committee, having good reasons to suspect concerted action by possible purchasers of the assets of the Chicoutimi Pulp Company, has lately been considering various schemes of reorganization. One of these should, in the estimation of the committee, prove wholly satisfactory to the bondholders. The committee hopes soon to be able to submit it in detail. It can only state in the meantime that the main feature of this scheme is the merging of the various properties—and the consolidation of the present first mortgage bonded debts at their present figure, working capital requirements being procured through an issue of common stock and not through an adidtional issue of bonds. Whilst it will be seen that the task of your committee has by no means been an easy one, the committee, with the assistance it is getting from the banks the bondholders' trustees, the trustee in bankruptcy, the officials of both the Chicoutimi and Saguenay companies, and the committee's legal counsel, Aime Geoffrion, K. C., is confident of being able to carry out its work to a sucessful end.

Water Power in Paper Making

The Dominion Water Power and Reclamation Service of the Department of the Interior of Canada has recently prepared an analysis of the use of waterpower in the pulp and paper industry in Canada. The importance of this industry to the national life of Canada is well known. The capital invested in its amounts to over $380,000,000 and the exports of pulp and paper products during 1922 were valued at $123,000,000, being exceeded in value only by the group of agricultural products. As cheap power is an essential factor in this industry, it is not surprising that ninety per cent of the power used for that purpose in Canada is derived from waterfalls. The bulletin above referred to gives a general discussion on the present use of power in the pulp and paper industry, construction activities and future power requirements, with tables showing the mills now being operated by water-power arranged by provinces with details of their power installations, and other tabular information.

Important Legal Decision

An important decision in regard to claims for compensation under the Quebec Workmen's Compensation Act has just been handed down by Sir Francois Lemieux in the Superior Court. Two lumberjacks contracted typhoid while employed in the camps of the Brown Corporation at La Tuque, Quebec. They claimed half pay during the period of confinement, contending that the water of the camp was responsible for the outbreak of 15 cases of typhoid. The Court held that, their case was not proven, but added that compensation could not have been collected, even if it had been proven, as disease contracted in an industry does not entitle the worker to compensation under this Act.

New Straw Pulp Mill

It is reported that a straw-pulp mill, costing with site, building and machinery, approximately $1,200,000 will be erected at Winnipeg by the Canadian Chemical Pulp and Paper Company. It is intended to use the vast quantity of straw now burned by western farmers as useless. The DeVains process will be used, and the initial output of the plant is placed at 50 tons.

New Pulp Mill

A pulp mill is to be erected at Sioux Lookout, Ont., by the Farlinger Company, it is announced, and a paper mill will be built later on. In addition, it is also proposed to develop the water power of the English River, the company having contracted to supply the town with light and power.

Guide for Importers and Exporters

A classified directory and handbook for American importers and exporters, under the title of "American Buyers' Guide" has been published by the American Chamber of Commerce in Berlin, Germany. The book contains a list of the sources of supply and much general information for American buyers of Central European merchandise.

Frederick W. King of the Mergenthaler Linotype Company of New York City, who is president of the American Chamber of Commerce in Berlin, Germany, writes the preface of the book. It is apparent from his preface that he takes a hopeful view of the entire European situation for he says:

"Since the close of the war the commercial world has been standing on the threshold of a new era without being able to enter it. Progress has been blocked by preparations and reparations. Men have grown old and gray, and even passed on, during the period of waiting—and we are still waiting. However, the whole European situation, and the general international as well, as lined up early in 1924, is infinitely more encouraging than at any time during 1923."

Copies of the book may be had from the American Chamber at Berlin for $3.50 each.

PAPER DEMAND IN CHICAGO SHOWS LITTLE IMPROVEMENT

Trade Looks for Last Half of Year to Make Up Slow Business of First Half—The Pilcher-Hamilton Co. Awards More Prizes at Monthly Sales Luncheon—American Paper Stock Association Postpones June Meeting—Chicago Concern Reports That Business for First Six Months of Year Discounted Business for Corresponding Period in 1923—Paper Trade Activities.

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., July 7, 1924.—The paper market for this city remained unchanged the past week so far as actual orders booked were concerned. The first four days were slightly more active than usual due to the fact that the last two were holidays for a large number of business houses and the paper buying which ordinarily was done in six days had to be done in four. This, however, was no criterion of quickened business; merely a little speeding up to get jobs done on time. Books and bonds registered the most marked demand in this connection because printers generally were hurrying to finish work on their books which customers were anxious to get as quickly as though business had resumed straight through the entire week.

With the turning of the year into the second six months period, merchants, wholesalers, jobbers and manufacturers as a whole expect to find a healthier demand than during the first half-year. Many members of the trade say that when the first six months is gone they breathe easier, for the last six are always better. Two of them are vacation months, at that, but even considering these, salesmen who are daily required to "beat the bushes," state that more business will be booked between the first of July and the last day of December. In view of developments in the nation which favorably affect business, these predictions should be entirely fulfilled.

Will Push Sales Efforts

Merchants who specialize in kraft and all other kinds of coarse papers, are prepared to go after the business during the next two months with vigorous sales effort. It will be necessary to do this, they say, or the share of business due each firm will not be realized. The greatest fluctuation in demand is expected to take place among commercial or industrial buyers; small retailers usually absorb their regular quantities in hot months as in the cold ones.

There are some buyers who are now actively in the board market. These are the ones who wait all the rest of the year until this period to lay in their supplies. They know prices are lowest right now and consequently, they stock up in July with heavy tonnage which will carry them through most of the balance of the year. This situation provides some encouragement and while board mills are operating at a greatly curtailed rate of production, they are kept encouraged by those buyers who come to the front at a time such as this.

Suplies of paper stocks are reported this week to be scarce. Packers have made a move for higher prices which for the most part amounts to about one dollar per ton, but only on lower grades. Some packers have one machine idle because of the decreased supply of stocks. It is said that roofing manufacturers have been displaying some interest in the paper stock market by taking large quantities of No. 2 mixed papers.

Association Postpones Meeting

The June meeting of the American Paper Stock Association, which was to have been held on the last business day of June, was again postponed due to the fact that quite a number of the members could not attend. Secretary Francis Hughes was himself out of the city. However, the local paper stock men, including President Joseph Monheit, of the Gumbinsky Brothers' Company, Chicago, held an informal meeting to talk over problems of the trade, at the Lexington Hotel. It is expected that the next gathering will take place on the last business day of July.

Awards More Sales Prizes

No wonder sales of the Pilcher-Hamilton Company, take a fresh spurt each month. Attendance at a sales luncheon held on the first Thursday of each month, at which all salesmen of the firm are in attendance, tells the reason. It convenes from 12 o'clock noon until 2 p. m., course interspersed and followed by an exchange of selling experiences, advice from the sale manager, prizes awarded for special effort during the past month, and suggestions given for the next one, and every man goes back to his job with a fresh supply of enthusiasm and inspiration.

The last sales' luncheon, on Thursday, July 3, was significant for several things. First, James Scott, secretary of the company, was present. This was one of his much enjoyed visits. He announced a prize sales' contest for the month of August for twines. He also advised the boys that the first of the brand new five-ton delivery trucks would appear for duty on July 10, and this would be followed by several more. During the past month Mr. Scott offered a special prize to the salesman who could write the best essay on the subject "What advantage is it to the trade to have a big stock to draw from?" First prize went to E. J. Herrick, second prize to Otto Wittikind and third prize to Vernon Quigley.

During the month of June a sales' contest was conducted on new accounts and Nibroc products. Two salesmen tied for first prize, William Deem and A. S. Harman. Second prize went to Henry Reineke, while for the third award both Otis Green and Lawrence Ebert came out a tie. The contest for July will be on toilet paper and the sales force has been divided into two teams with John De Vos as one captain and George Schultz as the other captain.

Sales Manager E. A. Hall, Jr., spoke for about ten minutes at the beginning of the luncheon on various subjects pertinent to the business. Inasmuch as Henry W. Borchardt, who is also editor of *BookanWrap*, the firm's house organ, was terminating his term as chairman of the sales committee and chairman of this sales luncheon, he introduced A. S. Harman, as his successor, presenting him with a huge gavel.

Nearly every one of the salesmen spoke for three minutes on some subject which had been assigned to him by the sales manager. Each talk was directed at some vital angle of the salesman's job.

Past Six Months Made a Good Showing

The Pilcher-Hamilton Company is pleased to report a substantial increase in sales for the period January 1 to June 30, over the same period last year. The firm is proud of the record in view of the fact that many members of the industry complained of a falling off, branding the cause as a result of a presidential year. During the last half of 1923, officers of the company felt the past six months would not be very promising and so a sustained vigorous sales campaign was waged all during the period. It has proved successful.

Activities of the Paper Trade

Horace M. Gimlin, vice-president of the Dwight Brothers Paper Company, has returned from his annual vacation spent in California. Another member of the Dwight organization is just leaving for a vacation. This is Miss Alida Hedner, secretary to W. E. Dwight, president of the firm. She will spend three weeks at Colorado Springs, Colo.

A third vacationist from the Chicago territory is L. C. Ferris, of the J. W. Butler Paper Company. He has just returned to his desk after a most pleasant outing.

Bob Butterworth, manager of the Chicago office of the Champion Coated Paper Company, has just taken a short western business trip.

PHILADELPHIA TRADE NOW SUCCUMBING TO SUMMER LULL

Holiday Week Quieted Down Business, Fine Papers Being Especially Slow—Seasonal Demand for Paper Specialties Is on While Paper Stock Is at a Standstill—Rag Dealers Form New Association to Be Known as the Wholesale Rag Dealers Association of Philadelphia—Fine Paper Division Meets and Discusses Trade Conditions—Lindsay Brothers Acquire a New Home.

[FROM OUR REGULAR CORRESPONDENT.]

PHILADELPHIA, Pa., July 7, 1924.—Holiday vacation time shortened the week's activities in the paper trade into a four days' business session with the usual quieting down of trading. Generally, the paper distribution field has settled into a summertime lull, with here and there a few specialties in active demand in both divisions. Fine papers, because of the inactive printing markets are moving slowly with prices holding firmer at the rock bottom established during the cutting period for the lesser known mill brands while the nationally known products are firming into a fixed quotation. The only concessions in the prices of printing and publishing papers are where quantity orders are placed and these discounts are not as generous as they were a few months ago when the keenness of competition was at its height. The distributors have come to the conclusion that this breaking into values on a wholesale scale is more injurious than beneficial and that trying to force sales, through price cutting, does not bring about betterment in industrial life and creates a demoralized market that will be difficult of adjustment to normal prices when the turn for the better comes.

Specialties in Demand in Coarse Papers

Seasonal demands in the coarse division center around the warm weather specialties such as glassine and grease proof papers, confectioners requirements and like products. The department store trade became more active with the advent of the vacation days and those distributors catering to this class of trade found business slightly improved especially for wearing apparel, millinery and shoe containers and wrappings.

Paper stock is at a standstill with warehouses fairly well filled. Rags are moving with more freedom and at advancing prices, especially for higher grades.

New Rag Association Organized

Prominent wholesale rag dealers of the Quaker City trade, during the week organized for the purpose of improving conditions through united effort and the formation of the Wholesale Rag Dealers Association of Philadelphia. The group of wholesale dealers responsible for the organization of the new body met at the restaurant on the northwest corner of 10th and Catherine streets, where future gatherings will be held weekly and there elected officers as follows: President John A. Murphy, of Daniel I. Murphy, Inc., vice-president, Dominic De Santi of Alexander De Santi and secretary-treasurer, Samuel Ingber of H. Feldman & Co. The folowing firms were enrolled in the membership: P. De Santi Company, Beitchman Brothers, A. Masington, S. Spector & Co., H. Feldman & Co., Daniel I. Murphy, Inc., and I. Di Biaso & Co., with five more firms expressing willingness to join the ranks at the next meetnig. This week the new organization will establish rules for the classification of stocks of rags for the purpose of providing an improved method of packing on a higher grading and standard so that the mills will know just what class of rags they are receiving. Under the new classification all rag dealers selling to the wholesalers will be obligated to sort and pack according to the specification of the classification rules set down by the association and no stocks will be accepted unless these rules are followed explicity by the dealers. In this way wholesalers claim they will be able to furnish the mills with standardized stocks of better quality than heretofore and that the mills in buying under the new classified grades will be able to know just what sort of stocks they are receiving and will be saved much time and overhead.

Paper Trade Association Meets

Leon Beck presided at the last June meeting of the Fine Paper Division held in the Bourse during the week when the Beck Paper Company was chairman for the occasion. Trade conditions were discussed in a brief session and plans for the development of business during the summer months were outlined in detail for the benefit of the members. It was announced that the meeting of the Coarse Paper Division which was scheduled for Thursday of last week was postponed because of the nearness of the holiday. It was decided to hold the Coarse Paper meeting next Thursday in order to prevent interruption and interference with the Fine Paper session which will meet this week.

Opens Distribution Quarters

Following a two and half years' office sales business, James Andrews, Inc., has branched out into the distribution end of the trade by taking over his own sales and warehouse in the building 1315-1329 Cherry street. With the new accommodations for the distribution of a complete line of fine papers for the printing, publishing, stationery and engraving trades the Andrews Corporation is now able to sell these lines in any quantity from the ream lot to tonnage orders. The new quarters are located on the main floor of the large commercial building at this address and will be used for the sale of writings ledgers, coated, books and other papers including the Chapin and Gould Paper Company's rag bonds, ledgers and weddings, and the Monadnock Paper Mills offsets, bonds, ledgers and weddings.

News Notes of the Trade

The Louis De Jonge Company, whose Philadelphia headquarters are located at 116 N. 7th street, has added three new printers' papers to its lines. They are the Art Gloss Enamel, De Jonge Folding Enamel, and the De Jonge Art Mat Folding in white and ivory or in a duplex paper with white on one side and ivory on the other. These are being distributed through the local manager, W. V. Doscher, who just has received a complete line of samples of the new grades.

Raymond and McNutt is exhibiting the several hundred specimens of the finest class of work produced by the leading printers of the country on the papers made by the Worthy Paper Company of Mittineague, Mass. The exhibit includes, booklets, folders, broadsides and other pieces of printed matter.

All the Clear Spring Lines manufactured by the West Virginia Pulp and Paper Company have been added to the stocks carried by Lindsay Brothers and include the Super Calenders, English Finish, in white and India, Text, in white and India and the West Virginia Super Calender Book in India Tint. These are to be carried in all usual sizes and weights with special service in the 29 x 52 and the 35 x 45, not normally carried by the average paper dealer.

President Morgan H. Thomas, of the Philadelphia Paper Trade Association and vice-president of the Garrett-Buchanan Company, is expected to return from his trip to Europe this week.

Douglas W. Bond Resigns

PHILADELPHIA, Pa., July 7, 1924.—Douglas W. Bond has resigned as treasurer of the Dill and Collins Company, after a service of more than twenty years with that concern. He is now at the Colonial Hotel, Cape May, N. J., and plans to take a few weeks' rest before seeking any new connections.

MATHIESON System

What Mills Are Using the Mathieson System?

THIS question is naturally one of the first to be asked by paper mill men interested in the use of Liquid Chlorine and the Mathieson System for preparing bleach liquors. The answer is so impressive that we will let the list speak for itself.

The first installation of the Mathieson System was in the latter part of 1922 at the Port Huron Sulphite & Paper Company's mill, Port Huron, Michigan. At present the System has been adopted and is being used, by the following mills:

Hammermill Paper Company, Erie, Pa.
Hamersley Mfg. Company, Garfield, N. J.
Mead Fibre Company, Kingsport, Tenn.
Champion Fibre Company, Canton, N. C.
Provincial Paper Mills, Port Arthur, Ont.
Crystal Tissue Company, Middletown, Ohio
S. George Company, Wellsburg, W. Va.
Sweet Bros. Mfg. Co., Inc., Phoenix, N. Y.
Dill & Collins Company, Philadelphia, Pa.
The Smith Paper Company, Lee, Mass.
Port Huron Sulphite & Paper Co., Port Huron, Mich.
Consolidated Water Power & Paper Co., Appleton, Wis.
District of Columbia Paper Mfg. Co., Washington, D. C.
Nekoosa-Edwards Paper Company, Port Edwards, Wis.
Riordon Pulp Corp., Hawkesbury, Ont., Can.

Paper mills where the Mathieson System has been installed but is not yet ready for operating, are:

Kalamazoo Vegetable Parchment Paper Co., Kalamazoo, Mich.
Paterson Parchment Paper Co., Passaic, N. J.
International Paper Co., Piercefield, N. Y.

There are also a number of mills which are contemplating installing this System and for which plans are being prepared.

Two important principles form the basis of the Mathieson System: (1) the use of predetermined quantities of all materials, weighed with absolute accuracy, and (2) the utilization of the refrigerative effect of the vaporization of the Liquid Chlorine to counteract the heat of reaction of the Chlorine with the lime. The Mathieson Multi-Unit Tank Car, with its fifteen containers of exactly 2000 pounds net, provides an accurate unit measure of Liquid Chlorine for preparing each batch of uniform bleach liquor.

Let our Technical Department demonstrate the many advantages of the Mathieson System.

The MATHIESON ALKALI WORKS Inc.
25 WEST 43rd STREET NEW YORK CITY
PHILADELPHIA PROVIDENCE CHICAGO CHARLOTTE

Deal Direct with the Manufacturer

EAGLE THISTLE PRODUCTS

Bicarbonate of Soda
Liquid Chlorine-Caustic Soda
Sesquicarbonate of Soda
Bleaching Powder-Soda Ash

TORONTO TRADE DISTURBED BY THE STRIKE OF POSTMEN

During Nine Days That Strike Lasted Practically No Orders Were Received by Mail—George Hancock Elected President of Canadian Paper Box Manufacturers' Association at Meeting Held Recently at Chateau Laurier—Hammermill Paper Co. Handling Large Supply of Pulpwood—Canadian Mills Showing Great Interest in Safety Prevention Work—Notes and Jottings of the Industry.

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ontario, July 7, 1924.—Business in the paper line was greatly disturbed during the recent strike of the postmen which lasted nine days. In that time practically no orders came in by mail and there was much interruption to trade in general, which all branches of business felt. Now that the tangle has been straightened out, there has been quite a rush in filling belated orders, which has kept the staffs busy. Otherwise, there is not much change in conditions generally and the mid-summer quietness will likely prevail for some weeks. Mills are operating only to fair capacity and orders are being met without delay. Manufacturing stationers are busy in some branches such as scribblers and blank books to meet the fall school requirements but, in the envelope and papetery lines, there is not much doing and most establishments are getting along with less than the usual staff.

It is expected that business will pick up in the fall but most jobbers report that trade for the first six months of this year has been from 10 to 20 per cent below the volume of the corresponding six months of 1924. There is still hesitation on the part of buyers and the printing trade is rather stagnant. Prices show no change and some salesmen have already started to take their holidays. One noteworthy feature is that business in the small towns is better than in the larger cities. With good crop prospects and the trend of prices to increase for some farm products, it is expected that a better feeling will exist before many months elapse.

Paper Box Men Elect Officers

The ninth annual convention of the Canadian Paper Box Manufacturers' Association, which was held recently at the Chateau Laurier, Ottawa, was well attended and a number of interesting papers were read on subjects of importance to the trade. Niagara Falls, Ont., was selected as the convention city for next year. The question of whether the Association could take any action regarding the standardization of box sizes, by co-operation with other industrial associations whose members are box consumers, was taken up but no action was decided upon. George Hancock, of the Galt Paper Box Company, Galt, Ont., was elected president in succession to J. B. Lawrason, of Toronto, and L. J. Adjutor Amyot, of Quebec, was elected vice-president. S. J. Frame, of Toronto, was re-appointed secretary-treasurer. The new directors are B. Sproule, R. S. Dunlop, and J. B. Lawrason, of Toronto, and L. J. Adjutor Amyot of Quebec. Howard P. Beckett, field secretary of the National Paper Box Association of the United States, was given a warm welcome and told of the various activities of that body.

Handling Large Supply of Pulpwood

The Hammermill Paper Company, of Erie, Pa., whose Woodlands Department is located in Port Arthur, Ont., will handle about 65,000 cords of wood during the present season. They have purchased some 20,000 cords direct from settlers on cars and on the banks of the various streams and rivers, and about 45,000 cords from jobbers. It is understood that the drives of the company have gone exceedingly well this season considering the weather. About 25,000 cords have already been shipped, which is much better than previous years. Boats and labor are both plentiful.

In connection with the drives, it may be pointed out that the Kam river has been low owing to the depletion of the storage water in Dog lake by the Power Company. However, the company recently had all the wood concentrated above Kakabeka Falls and, under the supervision of C. Prouty, representative of the Ontarion Department of Lands and Forests, who has charge of the regulation of the water, the Hammermill Company drove all the wood, about 18,000 cords, over the Falls, so that now the wood will come down safely.

In regards to prospects, it is likely that the Hammermill Company will be in the market again next season for about the same quantity of wood, but it looks as if prices may be a little less owing to the falling off in demand.

Notes and Jottings of the Industry

Peter Christie, of the John Martin Paper Company, Winnipeg, was a recent caller upon the members of the trade in Toronto.

I. H. Weldon, president of the Provincial Paper Mills Company, Toronto, and Mrs. Weldon, have returned from a visit to Evansville, Indiana.

A. P. Costigane, of Toronto, secretary-engineer of the Ontario Pulp and Paper Makers' Safety Association, and Mrs. Costigane, have sailed for England and will be absent several months. Mr. Costigane will pay a visit to the British Empire Exhibition.

W. F. Brunner, president of the Patterson Parchment Paper Company, Passaic, N. J., and wife, spent a few days in Toronto recently on their way to Banff.

Fred T. Butler was found dead recently in his room on Euclid avenue, Toronto. He was 62 years of age and was well known in paper circles, being a former member of the sales staff of Warwick Bros. and Rutter, manufacturing stationers, Toronto.

The Don Valley Paper Mills, Toronto, who for some years have had their office in the Dominion Bank building, Toronto, have removed to larger quarters in the Federal building, Richmond street, west.

Harry Pudden, who for some time has been associated with J. H. Black, of Toronto, president of the Great Lakes Paper Company, Fort William, has been appointed manager of the company at Fort William, succeeding John F. King, who has gone with the Combined Locks Paper Company, Appleton, Wis.

R. S. Kellogg, secretary of the Newsprint Service Bureau of New York city, recently delivered an address before a well attended meeting of the Canadian Club at Fort William on "The Paper Age."

T. J. Stevenson, of Montreal, who is head of the sales department of the Riordon Company, was a recent delegate to the International Rotary convention held in Toronto.

Hon. Charles McCrea of Sudbury, Minister of Mines for Ontario, who lately returned from a trip to Great Britain, in the interest of the development of mineral resources of the North, states that, if for any reason the foreign sources of sulphur should cease to supply certain Canadian pulp mills, it would be quite possible to meet the requirements from Canadian sources. It is understood that the new processes for sulphur recovery from pyritic ores of nickel and copper are being developed with excellent results.

Mrs. A. D. McInnis, of Cochrane, died recently in her seventy-first year. She was the mother of R. A. McInnis, manager of the Abitibi Power and Paper Company, Iroquois Falls, Ont.

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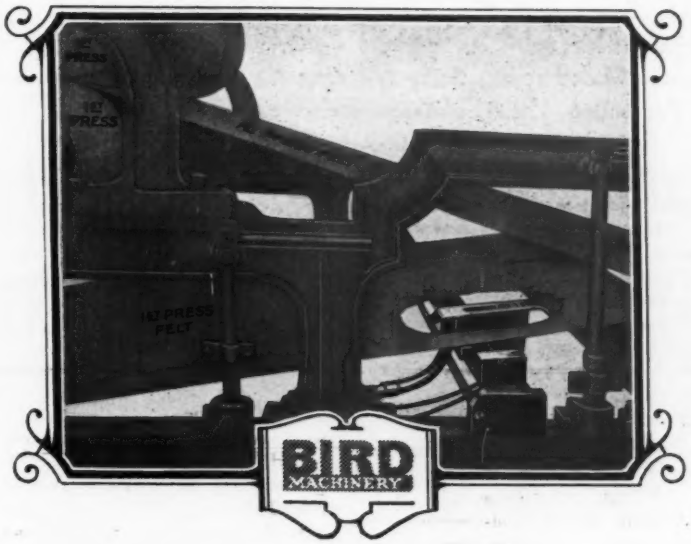
WASHINGTON, D. C. July 9, 1924.—The Government Printing Office will receive bids on July 16, for 10,200 pounds (250 reams) of 31½ x 36 white sulphite bond paper.



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MALODOROUS SUBSTANCES IN SULPHATE*

Investigations Concerning the Malodorous Substances Formed in the Manufacture of Sulphate Cellulose and the Possibility of Preventing Their Formation and Methods for Rendering Them Harmless

By Professor Peter Klason.

1. Introduction

The manufacture of soda pulp brought to the neighborhood of the pulp mill a disagreeable burned odor, which, however, was seldom noticed on a great distance. When soda ash was substituted by sodium sulphate, this condition, however, became worse by a considerably more disagreeable odor, resembling at the same time both garlic and cabbage that totally masked the burned odor. On account of the fact that the odorous substances in these vegetables are volatile sulphur compounds, it has been considered that such substances, belonging to the mercaptan and the alkyl groups in this case also cause the disagreeable odor. Nothing was known on this subject, however, before I and my assistant in the investigations, Eng. Henry Persson in 1906 published a short resumé of the results we obtained. The raw materials for these investigations were obtained by Persson at Örebro paper mill after a method related below.

It was certainly true that the substitution of the caustic soda with sodium sulphate in the recovery process resulted in a large economic gain through a higher yield and a stronger pulp, but on the other hand through the bad odor mentioned above, the change brought a serious disadvantage, which has been a drawback for the free development of this valuable manufacturing method. This has been very much deplored because sulphite pulp can not replace the sulphate as to quality, and furthermore it is necessary to be more careful in the selection of pulpwood for the sulphite process. The high pitch content of pine makes it impossible to use this wood for the production of sulphite pulp.

It would therefore be of great public and private interest if the disadvantages in the manufacture of sulphate pulp could be prevented or at least be decreased to a considerable extent.

2. Investigation Concerning the Properties of the Malodorous Substances Formed in the Cooking of the Wood

That these substances have an extremely intense odor is a well known fact. The conditions with both malodorous and fragrant substances are that the odor apparently increases with increased dilution. Under certain conditions the odor can therefore be noticeable at great distances. An idea as to the extreme delicacy of the sense of smell for these substances can be had from the report from Franö sulphate mill in 1896, where the odor was plainly noticed in the city of Hernösand, located 40 kilometers (25 miles) from the mill. That the odor was noticeable such a distance is certainly an uncommon exception and involves large currents in the atmosphere, which only are in existence on rare occasions. It is therefore very seldom that the odor from the large sulphate mill in Skutskär is noticed in Gefle, although the distance is only about 16 kilometers (10 miles).

As previously mentioned nothing is known regarding the nature of the malodorous substances formed in the sulphate process, although facts have given sufficient evidence that they are of a very volatile nature.

As in my lectures on the manufacture of sulphate pulp I always emphasized that the fire, which some years ago destroyed the sulphate mill at Wärnbols was due to methyl sulphide which is very volatile, as it boils at 37 deg. C. The air on the occasion referred to was so loaded with this gas that the fire instantly spread over the whole building. It was a practice to relieve the digesters directly into the white liquor. Methyl sulphide has identically the same odor as the one characteristic for the sulphate mills and it was this odor, well known to me from previous investigations, that in this connection caused the search for this compound.

On account of my previous work with spruce lignin, mecaptans and sulphides I was fairly well acquainted with the problem in advance. Lignin contains methoxyl groups (OCH_3) which at the high temperatures occurring in the digester can be saponified by the alkali and by the alkalisulphides; in the first case to methyl alcohol, in the latter to methyl mercaptan. If the lignin is symbolized with the formula $ROCH_3$ in which formula R indicates all the rest of the atoms in the lignin molecule the formation of the above mentioned groups takes place according to the following formulas:

1. $ROCH_3 + NaOH = RONa + CH_3OH$
2. $ROCH_3 + NaSH = RONa + CH_3SH$

Methyl mercaptan, however, has a negative character and in the presence of alkali can therefore be converted in alkali mercaptide:

3. $CH_3SH + NaOH = CH_3SNa + H_2O$

which in its turn can act on the lignin according to the formula:

4. $ROCH_3 + CH_3SNa = RONa + CH_3SCH_3$

Taking everything in consideration it can be said that wherever an organic sulphohydrate (mercaptan)is formed at the same time the corresponding sulphide is obtained and reversed, which fact I have shown in detail at an earlier date.

Such a decomposition of the methyl compounds, however, takes place with very much greater difficulty with alkalies than with acids. Such is the condition with the simplest representatives of the aromatic methoxyl compounds, the so-called anisoles. If lignin or the wood itself is heated with concentrated hydrochloric acid or preferably with hydriodic acid, all such methoxyl groups are split off completely as methyl chloride or iodide respectively. With alkalies as well as with alkalisulphides, this decomposition occurs only in traces even at the high temperatures 150 to 180 deg. C., that exists in the sulphate digester. It is the same condition with the anisoles. This is a fortunate condition, otherwise such immense amounts of these compounds would be formed—about 4 per cent of the dry weight of the wood—that the whole industry would be rendered almost impossible.

One can assume a priori that these reactions progress with increased time and temperature, everything, however, within certain limits, of course. As we will see in the following, the condition is really such.

Procedure

The raw material was obtained as stated from Örebro paper mill which principally produces kraft pulp. The work of collection was started in the middle of October, 1906. There are 5 digesters with a volume of 24 cubic meters each. They are vertical, rotating and the arrangements are such that the relieving of the digesters can only take place when they are standing still. The maximum pressure was about 5 to 6 atmospheres, corresponding to a temperature of 150 to 160 deg. C. The cooking liquor was the ordinary solution of sodium hydroxide and sodium sulphide with a sp. gr. of about 20 deg. Be. The amount of sodium sulphide was 25 per cent of the total alkali. The cooking time was 6 hr. In carrying out the tests the wood was exclusively spruce. When the wood was cooked the steam was blown through a cooling pipe placed in a tank where the water for the washing of the pulp was preheated.

After a series of preliminary tests, which need not be reported in this connection the following simple procedure was found to give the desired results. A cooler was connected directly with a

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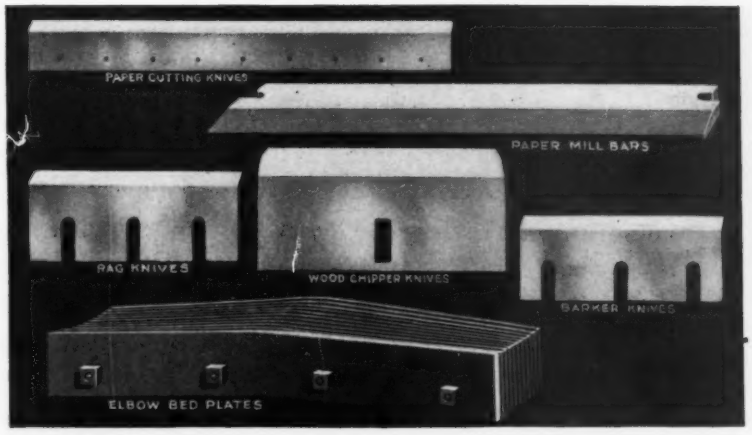

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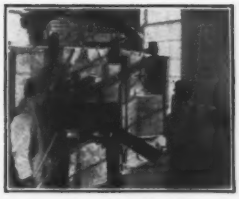

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valve on the digester cover. It was an ordinary surface cooler connected with two boxes of brassplate of which one received the vapor and the other the condensate. The uncondensed vapors after passing a spray condenser were led through a series of absorption flasks containing solutions of lead acetate. In the condensate the turpentine is found. In the sugar of lead solution is formed a yellow crystalline precipitate, which occurs principally at the beginning of the blowing. This precipitate was found to be lead methylmercaptide, as might be expected. The amount was not large so it could be assumed that not more than 15 g. or 20 g. at the most of methyl mercaptan was formed per cook. Since the mercaptan can be easily and accurately determined quantitatively, the amount can be determined without difficulty as soon as suitable arrangements have been made.

It was not difficult to obtain a gas from the lead compound, which had the same properties as the methyl mercaptan gas, which I made for the first time in pure form 27 years ago. This gas had identically the same odor as decayed cabbage. Nencki showed later, guided by my investigations, that decayed cabbage does evolve this gas. Methyl mercaptan is without doubt that substance, the odor of which is noticeable in greater dilutions than any other body. Peculiarly enough is the fact that in concentrated state it is less definite and does not seem to be intense or disagreeable. It is just after dilution with large amounts of air that the cabbage odor develops.

If to the lead methylmercaptide there is added hydrochloric acid drop by drop methylmercaptan is liberated, which gas, led into solutions of certain metallic salts produces precipitates of methylmercaptaides.

Lead methylmercaptide dried over phosphoric acid anhydride gave an analysis the following results:

	Pb.	C.	H.
Calculated	68.77	7.99	2.00
Found	68.70	7.89	2.10

Even in a dry state, it had the odor of mercaptan, probably due to hyrolysis or to the influence of the carbonic acid in the atmosphere.

Mercuric methylmercaptide is obtained as a white crystalline precipitate if the gas is led into a solution of mercuric cyanide. It is almost ordorless. The following metal mercaptides have before been produced:

Copper cuprous methylmercaptide is obtained as a green precipitate if methylmercaptan gas is led into a solution of coppersulphate and sodium acetate.

Cadmium methylmercaptide is obtained in the same manner if the gas is led into a solution of cadmium sluphate and sodium acetate. It precipitates as white shiny scales.

Zinc methylmercaptide is obtained in the same manner as a crystallinic precipitate and has, like the cadmium compound, a strong odor of mercaptan.

The only methylmercaptides that are absolutely odorless are those of the precious metals. On account of this fact the purification of the relief gases from the digesters with the heavy metalsalts, can not be taken in consideration. At best the only one that could be considered, is a mixture of zincchloride and calcium acetate. On the other hand it is easy to render the gas innocuous by leading it into a furnace after the separation of the condensate, obtained by a cooling. The pipe connecting the condenser with the furnace ought to be equipped with diaphragms of copper wire in one or two places to prevent possible explosion in case the gas is mixed with air. The gas can also be absorbed in concentrated white-liquor, which after saturation with the gas can be fed into the rotary incinerator. This method is more expensive in installation, but involves no danger from explosion. The operation by this method is as follows: Three closed containers are equipped with pipes for charge and discharge and with a gas inlet in the bottom. At the top of each container are pipes for the escaping gas and the pipes are so arranged that one of the tanks can be disconnected alternately leaving two containers always in operation. The gas is permitted to pass through tank No. 1 as long as a lead paper, mentioned later, is colored yellow by lead mercaptide. On each container is a sample cock, located above the surface of the liquor. No. 1 is then disconnected and replaced with No. 3. Tank No. 2 now serves as No. 1 in the new position and so forth. Through a special pipe the contents of the tank is dumped directly in the rotary incinerator, this manipulation being made in such a manner that the dumping and filling with fresh liquor is done when the tank is ready to be connected into the system again. For a medium sized mill the tanks do not need to exceed a volume of 1 cu. m. each and the volume of liquor about 0.5 cu. m. The inlet pipe for the gas ought to end in the bottom of the tank with a horizontal perforated spiral and at the top be equipped with a raiser to prevent the backing of the liquor from one tank to another in case of fluctuations in the pressure. The gas that is not absorbed in the washers should be led to the smokestack. If the cooling is not strong enough this gas may contain methyl sulphide which is not absorbed by the liquor. The odor of the methyl sulphide is however much weaker than the odor from the mercaptan.

Before further treatment of the separated turpentine oil, it should be vigorously agitated with white liquor, by which treatment the mercaptan is dissolved. This agitation ought to be continued until a sample of the oil shaken with lead acetate does not color the latter yellow or cause a yellow precipitate in it. The white liquor used up for this purpose is also fed to the rotary incinerator.

As mentioned above the amount of methylmercaptan gas obtained from a cook is very small. The gas is probably to be found in the vapor above the liquid in the digeste , because if bound to the alkali in the white liquor it would very likely combine with the lignin to form methyl sulphide or be decomposed into methyl sulphide and sodium sulphide:

$$2\ CH_3SNa = (CH_3)_2S + Na_2S$$

The condensate contains both turpentine and methyl sulphide. About 2 liters of oil was obtained per cook. From the portion of the oil that distills over below 100°C. the methyl sulphide can easily be obtained in pure state by fractional distillation, after purification from a small amount of mercaptan by shaking with alkali liquor, if this treatment is not done earlier. The boiling point of methyl sulphide is 37°C. and its character is in all respects indentical with that made from methyl alcohol. If the condensate is kept at a higher temperature than the boiling point of the methyl sulphide, the larger portion of the methyl sulphide distills over with the mercaptan vapors. There was about 200 g. of sulphide obtained per cook.

The amount of methylmercaptan per cook is small as already shown. Its odor however is so intense that 15 to 20 g. of methylmercaptan can be observed at one kilometer or more if the air currents are favorable for the dispersion of the odor.

In principal it is the same reaction that originates the methyl sulphur compounds according to the formula:

$$ROCH_3 + NaSH = RONa + CH_3SH$$

This has also proved to be the condition. The condensate according to Persson's investigations in 1906 contains about 5 kg. of this substance or 0.5 kg. per cu. m. wood, corresponding to 15,000 kg. per year. I do not consider the recovery of it as impossible.

The condensate obtained at the relieving of the digester as explained, has also a very disagreeable odor from the dissolved organic sulphur compounds and from methylamine bases, probably trimethylamine, to judge from the odor of pickled herring. The nitrogen bases are evidently derived during the cooking from the decomposition of the protoplasm in the wood. The condensate should not be wasted because of its odor, but utilized for making new cooking liquor. By doing so the amount of methyl alcohol will be increased in the condensate, making the recovery of the methyl alcohol a possibility.

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3. The Condensation of the Oils from the Digester Vapors

As a summary it might be concluded that the malodorous substances formed in the cooking can be made harmless by a suitable method of condensation, a procedure that might be feasible as the turpentine and possibly also methyl alcohol obtained, will compensate to some extent at least for the expense. It has also actually been proved that only by such measures can the odor conditions be improved. It is true, that already before condensation has already been tried and that no obvious result seems to have been obtained. With the knowledge of the volatile nature of the substances, which are intended to be condensed, it is however clear that this goal can never be reached, without taking steps for special measures fully intended for this purpose.

In the patent literature it has been proposed to destroy the malodorous substances with oxidizing agents such as bleach powder and permanganate with which chemicals the condensate should be treated. It is certainly true that by these alkaline oxidizing agents, both mercaptan and methyl sulphide are converted in water soluble, odorless sulphonic acids and sulphones respectively. From the foregoing it appears, however, that if the condensation is not done in a proper manner, that result is not obtained by the treatment of the condensate with these chemicals. Besides, the methyl alcohol in the condensate, which is also oxidized will increase the consumption of the oxidizing agent to such an extent that this method would be economically impossible.

4. Investigation of the Gases Formed in the Dry Distillation of Blackliquor, and Especially the Ones Containing Sulphur

It might first be remarked that the quantitative determination of hydrogen sulphide and methylmercaptan has been rendered possible by a method of analysis developed by me. This method is based on the fact that both gases are absorbed in solutions of mercuric cyanide, according to the reaction:

$$Hg(CN)_2 + HSCH_3 = Hg(SCH_3)_2 + 2HCN.$$
$$Hg(CN)_2 + H_2S = HgS + 2HCN.$$

There are thus formed partly mercuric methyl mercaptide and partly mercuric sulphide and hydrogen cyanide. Because of the absolute insoluability of these mercuric compounds and their immutability in the air, it is possible to determine them quantitatively by weighing. If the dry precipitate is then boiled with pure hydrochloric acid, the mercaptide is decomposed according to the formula:

$$Hg(SCH_3)_2 + HCl = Hg\begin{Bmatrix} SCH_3 \\ Cl \end{Bmatrix} + HSCH_3$$

that is; half of the amount of mercaptan is liberated. This portion is absorbed in alcohol and is then titrated with iodine according to a method developed by T. Carlson and myself. The determination of mercaptan is therefore one of the most exact analytical methods there is.

The dry distillation is done as follows: The black liquor is fed into a pan equipped with arrangements for condensation of the liquid distillate and with a container for receiving the vapor products of the dry distillation. The details of these experiments will be reported at another time.

Twenty-four kg. of black liquor was subjected to dry distillation. This liquor contained 714 g. sodium, 186 g. or 26.4 per cent of which was present as sulphate, 103 g. or 15 per cent as sulphide, 415 g. or 58.6 per cent combined with the organic matters and as free or carbonated alkali. Of the total active alkali in the white liquor about 20 per cent had therefore been in form of sodium sulphide. As the white liquor really contained 22 to 25 per cent of the alkali as sodium sulphide, a partial oxidation of the alkali in the black liquor has very likely taken place to some extent.

The liquor subjected to distillation contained therefore 72 g. sulphur as sulphide, and 129.6 g. sulphur as sulphate or a total of 201.6 g. The liquor gave a dry residue of 3216 g. or 13.4 per cent of the total liquor.

These 3216 g. of residue gave on dry distillation:

Residue (carbon and alkali)	2357 g.	= 73.3%
Tar	204 "	= 6.3%
Water like distillate	294 "	= 9.2%
Gas	361 "	= 11.2%
	3216 g.	100.0%

The gases had the following composition:

CO_2	68.2 liters	= 134.2 g.	= 4.2%
CO	46.5 "	58.0 "	1.8%
CH_4	33.5 "	24.0 "	0.8%
C_2H_4	9.7 "	12.0 "	0.4%
H	13.1 "	1.0 "	0.03%
H_2S	45.4 "	69.1 "	2.0%
CH_3SH	29.2 "	62.9 "	1.97%
	245.6 "	361.2 "	11.2%

The composition of the gas in per cent by volume was as follows:

CO_2	27.9 vol. %
CO	18.9 "
CH_4	13.6 "
C_2H_4	4.0 "
H	5.3 "
H_2S	18.4 "
CH_3SH	11.9 "
	100.0 "

The liquor gave therefore in dry distillation:

H_2S	69.1 g.	65.3 g. Sulphur
CH_3SH	62.9 "	42.1 " "
	107 "	107.4 " "

As the amount of sulphur in the liquor was 201.6 g. it seems as if about half of the total amount of suphur has gone away as hydrogen sulphide and mercaptan in the dry distillation.

It can furthermore be concluded that the black liquor referred to contained 2062 g. of organic matter and that this corresponds to an equal amount of cellulose. If every cook yields 1375 kg. dry cellulose the amount of liquor per ton of dry cellulose is 14.6 cu. m. If it can be further estimated that about 25 per cent of this black liquor is retained in the pulp there will be 8 cu. m. of black liquor to be evaporated and incinerated per ton of dry pulp.

There should therefor be formed in the dry distillation of black liquor:

H_2S	25 kg.
CH_3SH	23 kg.

The sulphate mill in Örebro should accordingly discharge from the rotary incinerators in the atmosphere with a production of 16.5 tons of cellulose per 24 hr.

H_2S	412 kg.	= 387 kg. Sulphur
CH_3SH	380 "	250 " "
	637 "	"

Such a condition would be absolutely impossible for the neighborhood to endure at wide distances.

It is noticeable that no methyl sulphide is obtained in the dry distillation of the black liquor, which substance is as a rule the principal product in the digester.

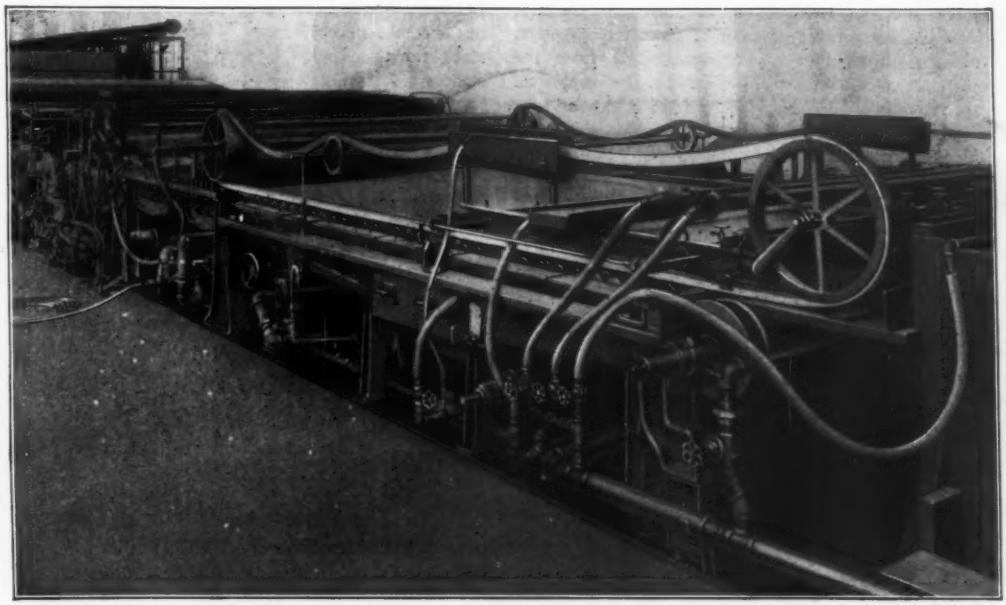
5. The Amount of Hydrogen Sulphide and Mercaptan, Which Escape from the Rotary Incinerators and from the Smelters at Örebro Sulphate Mill Through the Stack Per 24 Hours.

The determination was made in the following manner: 5000 liters of smoke gases were measured at ordinary temperatures by means of a precision gas meter and were passed through absorption flasks containing mercuric cyanide solutions. The content of the last flask stayed clear. Before passing the absorption flasks the gas was dried over calcium chloride, by which the moisture content was obtained. The necessary suction was effected by means of a water pump. The samples of the smoke gases were taken at the bottom of the stack after the disc evaporators.

A volume of 5 cu. m. of the smoke gases gave in the mercuric cyanide colution a precipitate of 0.3483 g., which contained 68 mg. of methyl mercaptan. From this was estimated that the smoke gases contained 13 mg. of methyl mercaptan and 4 mg. of hydrogen sulphide per cu. m.

The moisture content of the 5000 liters smoke gases was 1140 g.

A Record in Paper-Making Machinery



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A volume of 8 cu. meters of black liquor was evaporated per ton of cellulose = 8 x 16.5-132 cu. m. per 24 hr. (Prod. 16.5 tons 24 hr.) containing 125 cu. m. water. About 45 cu. m. are removed in the evaporators before the liquors enters the recovery system, where 80 cu. m. water is to be evaporated per 24 hr. = 350000 cu. m. smoke gases.

From this it can be calculated that about 4.5 kg. methyl mercaptan and 1.4 kg. hydrogen sulphide is passing out of the stack per 24 hr.

The amount of sulphur compounds formed in the digester itself has unfortunately not been accurately determined. As brought out in the above these amounts can be assumed as being 170 g. mercaptan and 2300 g. methyl sulphide per 24 hr. According to these figures there is about twice as much sulphur compounds polluting the air from the recovery system as from the digesters.

That the condensation of the sulphur compounds from the digesters improve the condition considerably can be concluded from the above as about ⅓ less of the malodorous substances are let out in the atmosphere. The odor is, however, improved considerably more than ⅓ by the condensation, which easily can be explained as the odorous substances from the recovery are much more diluted already before reaching the stack than the gases from the digesters.

The smoke gases contain as shown above about 13 mg. methyl mercaptan and 4 mg. hydrogen sulphide per cu. m. and the total amount of smoke gases is 350000 cu. m. per 24 hr. From these figures the question, regarding the washing of the smoke gases with water can easily be estimated. Assuming that the water in the smoke gases is condensed, it should require 5 times as many washers as there are in the gas generator plant in Stockholm, and besides, the mercaptan and the hydrogen sulphide have not the same affinity for water as ammonia.

But even if these smoke gases were led to a well regulated furnace, only a small portion of them would be combusted. The fact remains that such a small amount of combustible gases in the atmosphere can only burn completely at the high temperature of the oxyhydrogen gas.

It is not possible to utilize the smoke gases as primary air in the smelters as only a small part of this air could consist of smoke gases because of the decrease they would cause in the temperature.

In any case, the moisture in the smoke gases must be condensed, which should require from 10000 to 15000 cu. m. water per 24 hr. Experience has shown that in such cases 10 times the calculated amount as a rule is actually required.

From a practical point of view therefore there is only one way to arrive at the desired goal, and that is to run the mill so that the formation of the gases containing sulphur compounds is avoided to the largest possible extent. An investigation of the chemical process in the recovery ovens ought to bring some light on this subject.

6. The Chemical Process in the Soda Recovery Ovens

We have found that in the dry distillation of the black liquor there is formed 412 kg. H_2S and 380 kg. CH_3SH, but that actually only 1.4 kg. H_2S and 4.5 kg. CH_3SH is found in the smoke gases, or 0.3 per cent and 1.2 per cent respectively of the amounts formed. In other words 99 per cent of the total amount of sulphur compounds formed in the incineration of the black liquor has burned up, probably forming sulphur dioxide. The 412 kg. H_2S and 380 kg. CH_3SH correspond as above to 637 kg. sulphur. If about 4 kg. sulphur is subtracted from this amount, which is considered gone away in the form of hydrogen sulphide and mercaptan, 633 kg. sulphur has combusted to SO_2 in the soda ovens per 24 hr. The daily addition of salt cake to the system was 3300 kg. corresponding to 743 kg. sulphur. If ¼ or 185 kg. is subtracted, which is the amount retained in the pulp with the corresponding amount of alkali, and if it is furthermore remembered that only 25 per cent of the total alkali in the white liquor is combined with sulphur, it is found that 558 kg. of sulphur must go away with the smoke gases as sodium sulphite and 185—155¼ = 139 kg. as free SO_2; a total of 697 kg. If the impurity of the salt cake is taken in consideration this amount can be decreased to about 677 kg. If this estimated amount is compared with the 633 kg. obtained from experimental dry distillation of the liquor, there is as large an agreement as could be expected between the estimated and experimental results.

We can therefore calculate that 2197 kg. of sodium sulphite and 278 kg. SO_2 per 24 hr. go away with the smoke gases. This corresponds to about 6 mg. NA_2SO_3 and 0.7 mg. SO_2 per liter of smoke gas. These are indeed large quantities in question, but the concentration is so small that hardly any increase in the absorption in the disc evaporators could be effected by an increased speed. The sodium sulphite can be considered as harmless. The amount of SO_2 corresponds to about the same amount as is let out in the air in the combustion of 13 tons of hard coal per 24 hr. A high smoke-stack for this reason is preferable, even if no malodorous substances were present, because of the injurious effct caused by the sulphur dioxide especially on coniferous woods.

From the chemical process in the soda furnaces the opinion is derived, that of the sulphur dioxide formed in the rotary incinerator by the combustion of the mercaptan, and the hydrogen sulphide formed in the dry distillation of the black liquor, about 80 per cent is neutralized by the alkali volatilized in the smelter. The remaining 20 per cent is found as free SO_2 in the smoke gases if a small portion thereof cannot be considered combined with ammonia or aminebases.

7. The Principles for the Operation of the Recovery Furnaces in Order to Avoid the Formation of Volatile Sulphur Compounds to the Largest Possible Extent.

These appear from the above. The combustion in the rotary must be as complete as possible, which is obtained by means of air blasts not only for the smelter but also for the rotary incinerator and by keeping the black liquor at a high specific gravity when entering the rotary, so that the evaporation of the water does not lower the temperature too much. Furthermore it is of special importance that the speed of the discs in the disc evaporators is such that no dry distillation of the liquor takes place on them. Finally the relieving of the digester ought to be carried out until the distillate no longer has any bad odor, otherwise these malodorous substances will pollute the air in the evaporation of the liquor. The higher the concentration of the liquor, or in other words, the dryer the wood is, the easier is this goal obtained in the relieving of the digester. Finally it is apparent that the smaller the amount of saltcake used per ton of pulp, the smaller amounts of volatile sulphur compounds are formed in the recovery ovens.

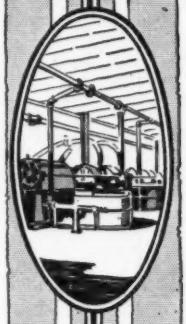
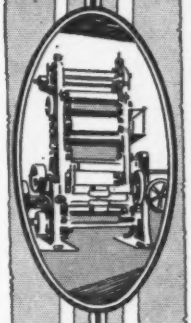
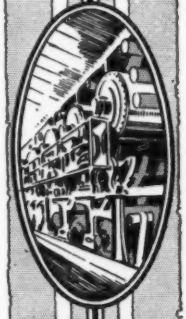
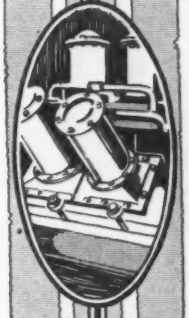
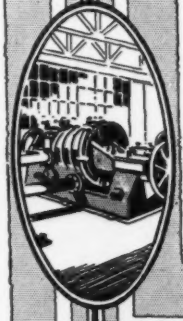
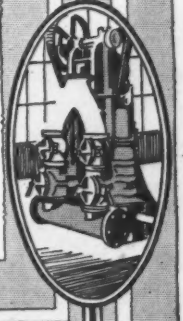
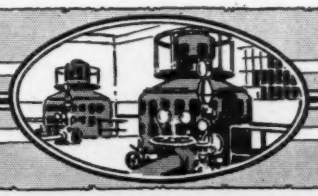
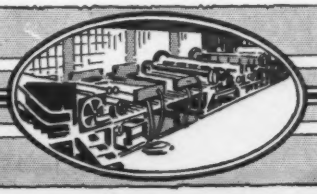
Briefly stated the fortunate circumstance is found that the more efficient, and the more economically the mill is run, the less is also the odor.

8 Routine Analysis for the Control of the Process in the Recovery Furnace.

While basic lead acetate, mercaptan forms a yellow precipitate of lead mercaptide, hydrogen sulphide gives a black precipitate of lead sulphide. If both are present, a yellowish brown precipitate is obtained. These conditions can be employed for routine analysis, which could be conveniently carried out as follows:

While writing paper is moistened with a solution of basic lead acetate (lead acetate is not so suitable) and dried. Strips about 3 cm. wide are cut and kept in a closed vessel. Such a trip of paper is fastened by means of a clamp to a rod placed in an opening in the brick wall behind the disc evaporator, made for this purpose. The paper is gradually colored yellowish brown. From the length of time required to obtain a certain shade the conditions can be judged. Since the lead mercaptide has a distinct odor of mercaptan, the paper gets a distinct odor thereof by the presence of mercaptan in the smoke gases. By keeping several numbered strips in close glass cylinders, comparative tests can be made as to color and smell.

How Efficient is Your Lubrication?

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Editorial

Vol. LXXIX New York, July 10, 1924 No. 53

HENRY J. BERGER, Editor

LABOR RECORDS SHOW DECREASE

The Bureau of Labor Statistics, Department of Labor, has just announced the labor figures for May. One hundred and seventy nine paper and pulp plants reported to the Bureau employment in April at 49,306, decreasing slightly in May to 48,964 a decrease of 0.7 per cent. The payrolls in these plants also decreased from $1,312,693 in April to $1,293,716 in May a decrease of 1.4 per cent. Replies were also received by the Bureau from 153 paper and box plants who gave their employment in April at 16,672, decreasing in May to 16,046, a decrease of 3.8 per cent. The payrolls in these plants also decreased from $351,599 in April to $339,218 in May, a decrease of 3.5 per cent.

The Bureau received replies from 133 paper and pulp mills who gave their employment in May of last year at 39,233 decreasing slightly in May of this year to 38,678, a decrease of 1.4 per cent. The payrolls in these plants also decreased from $1,032,294 in May of last year to $1,022,320 in the same month of this year, a decrease of 1 per cent. One hundred and thirty nine paper box factories gave their employment in May of last year as 14,015 decreasing in the same month of this year to 13,899, a decrease of 1.2 per cent. The payrolls in these plants also decreased from $289,943 in May of last year to $287,386 in the same month of this year, a decrease of 0.9 per cent.

DRIVE FOR MUSEUM OF ENGINEERING

One million dollars has been assured towards the establishment of the National Museum of Engineering and Industry, Incorporated, with headquarters in the Engineering Societies Building. A campaign to raise an additional nine million dollars starts today. The President of the new organization is Dr. Elihu Thomson who today receives the Kelvin Gold Medal from the Royal Society at the Kelvin Centenary in London. The Vice Presidents are Dr. Edward G. Acheson, one of the creators of the modern abrasive industry; Dr. Leo H. Baekeland, inventor of Velox paper and Bakelite, who is President of the American Chemical Society, and Dr. Edward Weston, creator of the Weston type of electrical instruments. Its Trustees are Philip T. Dodge, Chairman of the International Paper Company; Howard Elliott, Chairman of the Northern Pacific Railroad; Dr. Ira N. Hollis, President of the Worcester Polytechnic Institute; Dr. Elmer A. Sperry, President of the Sperry Gyroscope Company; and Worcester R. Warner, of Warner and Swasey, Cleveland, Ohio, makers of the great telescopes of the world. George E. Roberts, Vice President of the National City Bank, is Treasurer, and H. F. J. Porter, Industrial Engineer, is Secretary.

In co-operation with the Smithsonian Institution the new organization is planning to erect on its grounds in Washington a building to house the original models of early inventions and the records of constructive achievement of pioneers, inventors, and engineers in the development of transportation and industry. In this way the United States will be given the kind of institution which all the great European nations have possessed for years, and in the layout of the proposed museum use will be made of the data collected by an expert who has recently returned from a year's survey of museum practice abroad.

An important departure in the American scheme is proposed, however, made necessary by the vastness of the country. In addition to the central collections at Washington special collections such as replicas of the historical exhibits will be carried to the people, also live machinery of modern processes will be placed in affiliated museums in industrial centers of every state.

Already old models and records long forgotten have been located and resurrected and this winter will be exhibited at the headquarters as a demonstration of how the ultimate collection will appear.

Incorporation was effected in March last under the laws of the District of Columbia by the "Organizing Committee of 100" composed of chairmen of boards of directors, presidents and chief engineers of industries and railroads, and professors of engineering and history in universities and colleges.

DECLINE IN MAY PAPER EXPORTS

Paper exports from the United States during May, which were valued at $2,076,353 registered a decrease of three per cent compared with the previous month and eight per cent compared with May of last year, according to a statement of the Paper Division of the Department of Commerce. The Division, in commenting further on May paper exports, says: "Declines in the volume exported compared with last year are noticeable in shipments of news print, uncoated book paper, cover paper, greaseproof and waterproof papers, writing, surface-coated, tissue and crepe papers, boards, photographic and hanging paper, bags, boxes and cartons, and papeteries, and the majority of these also show a falling off in the volume of shipments compared with last month. On the other hand, exports of wrapping papers (including kraft), toilet paper, paper towels and napkins, sheathing and building papers, wall board, cigarette and carbon papers, envelopes, and cash register and adding machine papers, increased in May as compared with the same month last year, and in the case of wrapping papers, toilet papers, sheathing and building papers, and envelopes as compared with April."

SLASH BURNING FOLLOWS BAD FIRE PERIOD

April 25 of this year was the climax day of a bad spring fire period in southern Washington, but by April 27 the United States Forest Service experts, engaged in studies of fire control in the Columbia National Forest and vicinity, were urging operators to burn at once their slash left from logging in the fir type.

"Where this was done," says the United States Department of Agriculture, "the counsel of the forest research men was amply justified, for very effective burns were realized and a high relative humidity and a tenth of an inch precipitation on April 29 held the fires safe until they burnt out."

The Forest Service men explain this circumstances by pointing to the definitely determining influence on the fire situation in the Pacific Northwest exerted by the high relative humidity that may occur at any season, or even at certain hours of the day. During the period mentioned, an examination was made of one fire running

through a cut-over tract, where, although the open area was a furnace and many standing dead trees were sowing fire in all directions, the conflagration would not spread to the green timber. On the edge of the opening relative humidity was only 12 per cent, but 200 feet back in the forest it reached the fire-safe range of 35 per cent. This was on April 26 and indicated to the foresters that the fire period was waning. It is at this moment that slash burning is most effective, for the dry tops and branches will still burn fiercely, but the more compact surface litter has gathered enough moisture to resist the flames and so to protect the tree seeds contained therein.

Tennessee Paper Mills Insure Employees

An arrangement has been made by the executives of the Tennessee Paper Mills, Chattanooga, and their employees for a group insurance policy through which not only life protection is provided but weekly benefits will be paid in the event of illness or accident.

The policy, placed with the Metropolitan Life Insurance Company, involves a total of $74,000 in insurance and covers sixty-six persons. Minor employees are provided with $1,000 in life insurance and if disabled by illness or accident will receive payments of ten dollars weekly over a period of twenty-six weeks. Supervisors have $2,000 of life insurance and weekly payments of $20 are provided.

The policy is issued on the so-called contributory basis, with both the employees and the employing company participating in the payment of premiums. President John Stagmaier arranged for the insurance plan.

Chattanooga is one of more than four thousand cities and towns in the United States and Canada in which the Metropolitan Life maintains a free visiting nurse service for its policyholders, and the employees of the Tennessee Paper Mills are eligible for this. A Metropolitan nurse will attend any insured worker who is ill, advise with the family on his care and see that instructions by the attending physician are followed. The Metropolitan also will distribute frequently, without cost to the workers, instructive pamphlets on health and sanitation subjects.

Another division maintained by the insurance company for the benefit of insured is the Policyholders' Service Bureau. This is composed of a group of thoroughly equipped technicians who are prepared to consult with employing companies on matters of business administration.

Interest in Intensive Forestry in the South

As an evidence of an interest in forestry in the southern pine region among timber operators and owners there, Director R. D. Forbes of the Southern Forest Experiment Station, New Orleans, La., calls attention to the activities of one of the most progressive lumber companies in the South. This company employs a professional forester, under whose direction its very extensive timber holdings in this region are being cut according to some of the best forestry principles. In mature virgin stands of timber an adequate number of large trees are reserved from cutting to remain as seed trees; while in second growth a partial cutting is practiced, leaving a substantial portion of the stand for the increased growth that will result from removing the competing trees, and permitting a more profitable cutting of this remainder in 10 or 20 years from now. Here also a fairly intensive fire protection system has been worked out, in which standing trees left from a cutting are especially protected from subsequent slash fires. A thoughtfully planned educational campaign against forest fires has been organized as well, to acquaint local residents with the true nature of fire losses and with the aims of progressive forestry.

Miami Valley Superintendents Meet

MIDDLETOWN, Ohio, July 7, 1923.—The June meeting of The Miami Valley Division of The Superintendents Association was held at the Manchester Hotel, on Saturday, June 28.

This meeting was scheduled to be held in the afternoon and evening in the Grove at the summer cottage of Mr. Charles Shartle of The Shartle Brothers Machine Company. The rains of several days prior, and the heavy down pour of Friday night and Saturday morning, made the grounds very soft and not in condition to be used with any degree of comfort. It was decided by those in charge of the affair to call off the meeting at that place and hold it at the hotel instead.

About thirty men were present when dinner was served and in the above absence of both the chairman, L. T. Murphy and the vice-chairman, Homer Ferguson, H. W. Server of The Miami Paper Company presided as chairman.

A report from the general committee of the Dayton convention was read, and a very gratifying result was noted. The expense of the evening banquets were sponsored by The Allied Industries of the Paper Industry and The Miami Valley Paper Manufacturers Association. The report shows that the sum of money turned in to the treasury of The National Association after all expenses had been paid, was unequaled in the history of the Association.

A rising vote of thanks and appreciation was given to Mr. Server, who served as general chairman, and his co-workers, Dr. F. G. Henry, Tom Harvey, H. D. Martindale, E. T. A. Coughlin and Thos. E. Keogh.

R. L. Eminger the newly elected national secretary of The Superintendents Association, was present and was called upon for remarks. Mr. Eminger stated he was glad to be present and congratulated the Miami Valley Division for the wonderful success of the Dayton Convention.

He made several references to letters that had been received from the secretaries of other divisions, praising the wonderful success that attended the Dayton Convention and of the very high moral standard and dignified manner in which everything was carried out.

The remainder of the evening was spent in reading and discussing the paper on the "Difficulties Encountered in Printing Papers," by Peter J. Massey.

There were two superintendnts of the printing room of large printing establishments present, who gave some valuable information along the lines of the difficulties they encounter in their work.

The secretary presented two questions which came from the superintendent of a large Eastern paper mill, on the subject of a vacuum dryer and a felt conditioner. A very gratifying bit of information was given by several members on the subjects, and it will be forwarded to the superintendent in answer to his questions.

Several names were suggested to the secretary for membership in the association and he was instructed to confer with them and get their application for membership.

The matter of holding the next meeting was presented by the chairman, and it was decided to omit the July meeting, on account of many of the members being away on vacation during that month.

It was decided after some discussion, to hold the meeting on the third Saturday in August. The meeting will be held in the grove at Mr. Shartle's cottage.

Hammermill Agents to Meet Aug. 27-29

[FROM OUR REGULAR CORRESPONDENT.]

ERIE, Pa., July 7, 1924.—The thirteenth annual meeting of the agents of the Hammermill Paper Company will be held at Erie, August 27-29, inclusive. The usual very attractive program is being prepared.

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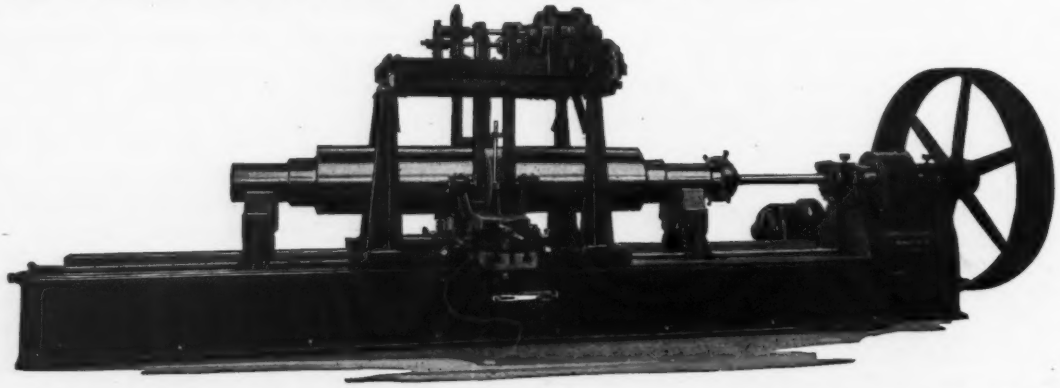

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Conducted by W.G. MacNAUGHTON, Secretary

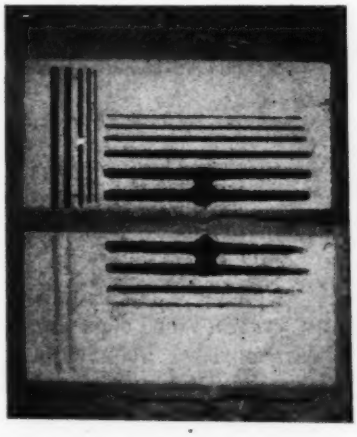
THE DESTRUCTION AND RESTORATION OF SIZING QUALITY IN PAPER*

By N. D. Ivanov.[1]

Of all the phenomena of the sizing process the destruction of sizing quality by sunlight is perhaps the most interesting. A study of this phenomenon may lead to a better understanding of the principles of paper sizing. For this reason the following experiments were undertaken.

The sizing quality in paper was destroyed by the direct action of the light of a voltaic arc for 20 hours. During all experiments the temperature at the paper varied between 32 and 35 deg. cent. The paper used was well sized writing paper made before the war.

In order to determine whether the loss of sizing quality is not due to a change in the physical structure of the paper, air-penetration tests were made before and after the loss of sizing. For these tests a specially designed apparatus was used (see Bum. Prom., II, no. 6, p. 698).



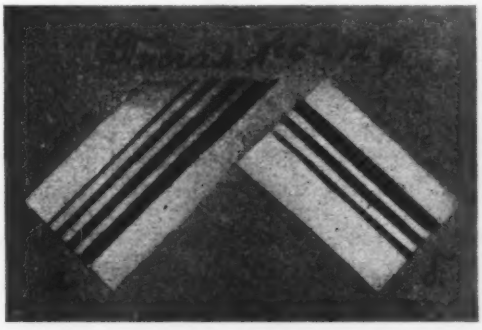
Photograph No. 1
a. After loss of sizing fastness.
b. After restoration of sizing fastness.

The air-penetration tests were made on adjoining parts of the sheet to avoid the effect of the non-uniformity of the paper. The results were:

PAPER	Pressure of the mercury column in mm.	Air-penetration in cu. cm. per sq. cm. per min.	
		Before loss of sizing.	After loss of sizing.
Writing No. 4.....	20	11.6	11.7
Writing No. 6.....	20	10.8	11.3

Evidently there was no change in the porosity of the paper after the sizing was destroyed. Therefore, the loss of sizing must be due to causes other than a change in the physical structure of the paper.

It occurred to the author that an explanation might be found if there was some way of reestablishing the lost sizing fastness.



Photograph No. 2

This was easily accomplished by ironing the affected paper with a hot iron. The sizing was then reestablished almost to the original state.

The destruction of sizing through the action of light and its restoration by means of a hot iron is seen on the photograph No. 1. The lower picture shows the reverse side of the sheet. The brackets and the letters "a" and "b" separate the part that was ironed from the rest of the sample.

While the papers were ironed in order to reconstruct the sizing it was observed that the papers were electrified. This was checked up by means of an electroscope with two leaves of cigarette paper. Whenever the ball of the electroscope was touched by the paper after ironing, the paper leaves invariably separated.

In another experiment the paper was placed in a drying oven at 100 deg. cent. with the same results: the sizing fastness was reestablished.

Another experiment was arranged in order to observe the effect of the light of a voltaic arc on electrified paper. A sheet of writing paper was ironed, and torn into two halves, one of which was

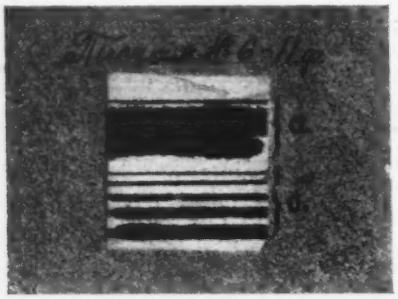
* Translated from *Bumashnaia Promyshlenost* (Russia), II, No. 6, 634-643, Dec., 1924, by M. L. Caust, Member TAPPI.
[1] Government Paper Testing Station, Moscow.

exposed for a short time to the light of a voltaic arc while the other was kept in the dark.

On touching the electroscope with the paper which was not exposed to light, the leaves separated, but the exposed sample showed no electrification.

From these experiments it was concluded that heat, on one hand, and the light of a voltaic arc on the other, have opposite effects on the sizing of paper.

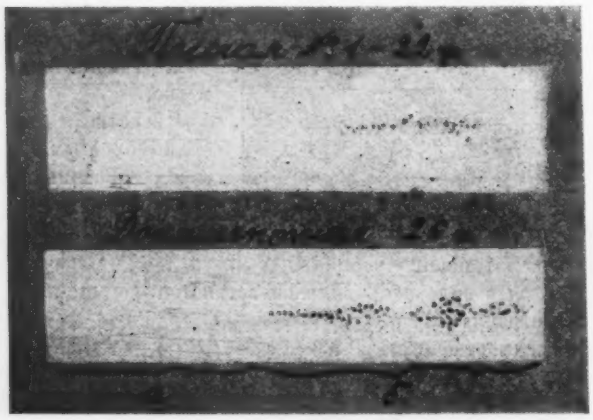
It was seen that heat reconstructed sizing fastness. The question



PHOTOGRAPH No. 3
a. After the action of light of a voltic arc.
b. After the action of red rays of light.

arose: Will sizing be destroyed by light and in the presence of heat? To answer this question a sample of paper was exposed to light of a voltaic arc while kept in an atmosphere of 110 deg. cent. The paper became entirely unsized.

Photograph No. 2 shows both sides of the paper used in this experiment. The side marked "a" faced the light and turned yellow. Unlike the other samples this paper did not regain its sizing quality through ironing. This interesting observation will be discussed later.



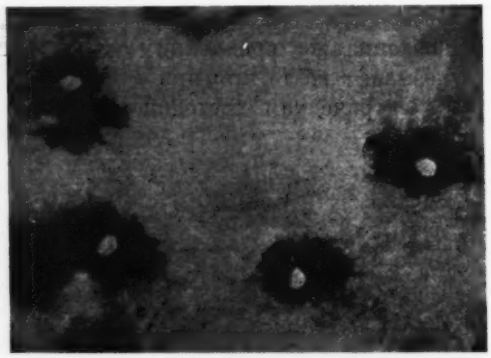
PHOTOGRAPH No. 4
a. After ironing with hot iron.
b. Before ironing with hot iron.

In the next experiment a sample of paper whose sizing was destroyed through the action of the light of a voltaic arc, was placed under a red glass and was then exposed to the light of a voltaic arc for 5 hours. The temperature between the paper and the glass reached 55 deg. cent. The sizing quality was regained to a considerable extent (see photo. No. 3).

In every case of exposure to the light of the voltaic arc the paper became noticeably yellower. The yellow disappeared and the original color was obtained after a half hour's treatment of the paper with a 0.5 per cent solution of aluminum sulphate and on drying either in the air or on the hot plate.

However, if after treating with aluminum sulphate the paper was dried by means of a hot iron then the original sizing and color returned, but when the drying was done in the air, only the yellowing disappeared while the sizing quality did not return.

These experiments showed that the decrease in sizing quality is dependent upon the electrical condition of the paper. The following experiments were undertaken to show the direct effect of lectricity on sizing, having in mind the interference with the sizing process



MICROPHOTOGRAPH No. 5 (x 30)

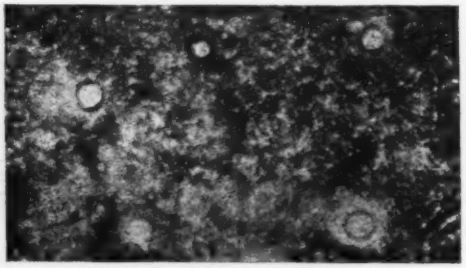
during atmospheric storms as well as the electrification of paper on the paper machine.

Effect of High Voltage Discharge on Sizing in Paper

A small Ruhmkorff induction coil was used giving a spark 4 mm. long. This spark made punctures in the paper 15 to 75 $\mu\mu$ in diameter. When ink was applied to one side of the paper, there appeared irregular spots on the other side, but after the paper was ironed the ink did not go through the small holes.

Photograph No. 4 shows two samples of paper each of which had small holes along along the entire length caused by an electric spark.

Half of each sample was ironed on a hot plate and the entire sample then received a heavy application of ink on one side. The reverse side of each paper is shown in the photograph. Black spots are seen only on the half which was not ironed after the electric



MICROPHOTOGRAPH No. 6 (x 30)

discharge. The holes could be seen by the naked eye when the papers were held up to light.

Under the microscope the ink spots are seen to be irregular in shape, the ink spreading considerably beyond the edge of the hole indicating a zone of destroyed sizing due to the discharge of high voltage. The character of the ink spots is seen on photomicrograph No. 5.

Photomicrograph No. 6 shows the paper after ironing which prevented the ink from going through the holes. The holes here seem to be round, but in reality they are no more so than in photomicrograph No. 5.

The following experiment was made in order to observe the effect of a silent discharge on sizing in paper.

A small Wimshurst electrophorus machine with two ebonite discs of 130 mm. diameter were used. The sample of paper was placed between the two conducting balls of the machine. When the machine was quietly rotated the discharge was so weak that the spark was not observed on the other side of the paper.

When ink was applied on one side of the paper after it was exposed to a silent discharge, numerous spots appeared on the other side. These are seen in photomicrograph No. 7. Under the microscope no holes could be seen in the paper. In those spots where the electric discharge took effect the ink went through the sheet.

Light dots seen in the center or some of the spots are not holes but transparent points where the fibers are crossed. Such transparent points can be especially observed on thin, glossy papers when held up to the light. A large number of these dots is seen in the photograph where there are no ink spots.

After ironing on a hot plate, and also after exposure to red (heat) rays, the ink did not penetrate through the paper.

The action of cathode rays on sizing paper was next studied. For the generation of a high voltage current the Ruhmkorff induction coil was employed. The cathode rays were produced with the aid of a glass tube with an abductor in the middle of the same diameter.

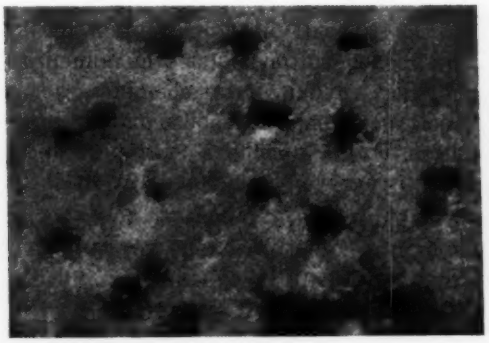
The electrodes were made of tin and silver-plated. Each electrode terminated in a disc of slightly smaller diameter than that of the tube; the discs had a large number of small holes.

The electrodes were fitted into stoppers which served to close the opposite ends of the tube. The side tube was connected to a water pump for the production of a vacuum in the tube. Fig. 8 is a sketch of the arrangement.

The samples of paper were placed inside the glass tube and were thus directly exposed to the cathode rays.

The action of the cathode rays for one minute caused a complete loss of sizing quality in the paper. There was no visible change in the appearance of the paper.

The sizing was mainly affected on the surface of the paper. A line drawn by means of a drawing pen spread out completely with an irregular border line.



MICROPHOTOGRAPH No. 7 (x 30)

The samples of paper for the tests were taken longer than the distance between the electrodes. The part of the sample which was beyond the illumination of th_ cathode rays showed no change in sizing.

The sizing fastness lost through the action of the cathode rays was recovered either by ironing on a hot plate or by exposure to the red (heat) rays from sunlight or from a voltaic arc, obtained by passing the light through ruby colored class.

Photograph No. 9 shows two samples of writing paper on which the middle lines show the destruction of sizing after exposure to cathode rays and the outside lines indicate the restoration of sizing after 5 hours' action of the light of a voltaic arc through ruby colored glass.

The following facts observed in the investigation of papers which lost their sizing through the action of light should be recalled here. In my report to The Technical Section of the Technic Economic Council on June 28, 1923, I called attention to the relation between sizing in paper and the electric charge of the disperse phase of the ink.

Having made a number of tests on paper unsized through the

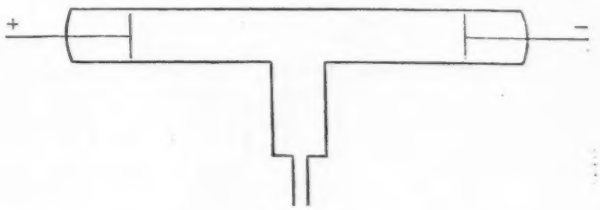
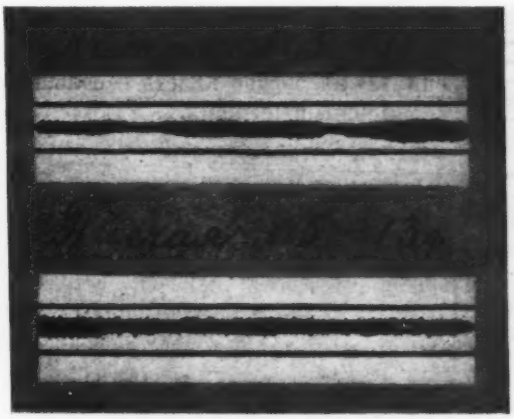


FIG. No 8
To Water Pump

action of light using different inks, I came to the conclusion that the loss of sizing is definite with respect to inks whose disperse phase is positively charged, but where the disperse phase of the ink is negatively charged the paper appears to retain some of its sizing quality. In the case of a printing paper it was observed that the sizing was poor with respect to Leonardi ink, but very good when eosine ink was used.

However, the question of the effect of the electric charge of the disperse phase on the sizing in paper seems to be very complex and requires further study.

The phenomena reported in this paper are sufficient to show that sizing quality in paper is dependent upon the electrical condition of the paper, of the sizing materials and of the ink. Such a conclusion is in agreement with the electrostatic theory of the sizing process as worked upon by Ostwald and Lorenz. I came to a similar conclusion independently of these investigators as is seen from my work on the hydrolysis of rosin size begun in 1915 (see PAPER TRADE JOURNAL, Vol. LXXVI., No. 11, Mar. 15, 1923).



PHOTOGRAPH No 9

Theoretical Explanation

During the sizing process the stuff in the beater represents a coarse suspension of a swelled colloid (cellulose), a negatively charged adsorbent. The rosin size emulsion is likewise a negatively charged colloid phase.

The solution of aluminum sulphate represents a highly disperse colloidal solution of aluminum hydrate in an acid medium, the disperse phase having a positive charge. The aluminum sulphate, therefore, serves to neutralize the negative charges of the cellulose and of the colloid phase of the rosin emulsion at the same time disturbing the stability of the system (coagulation) and forming

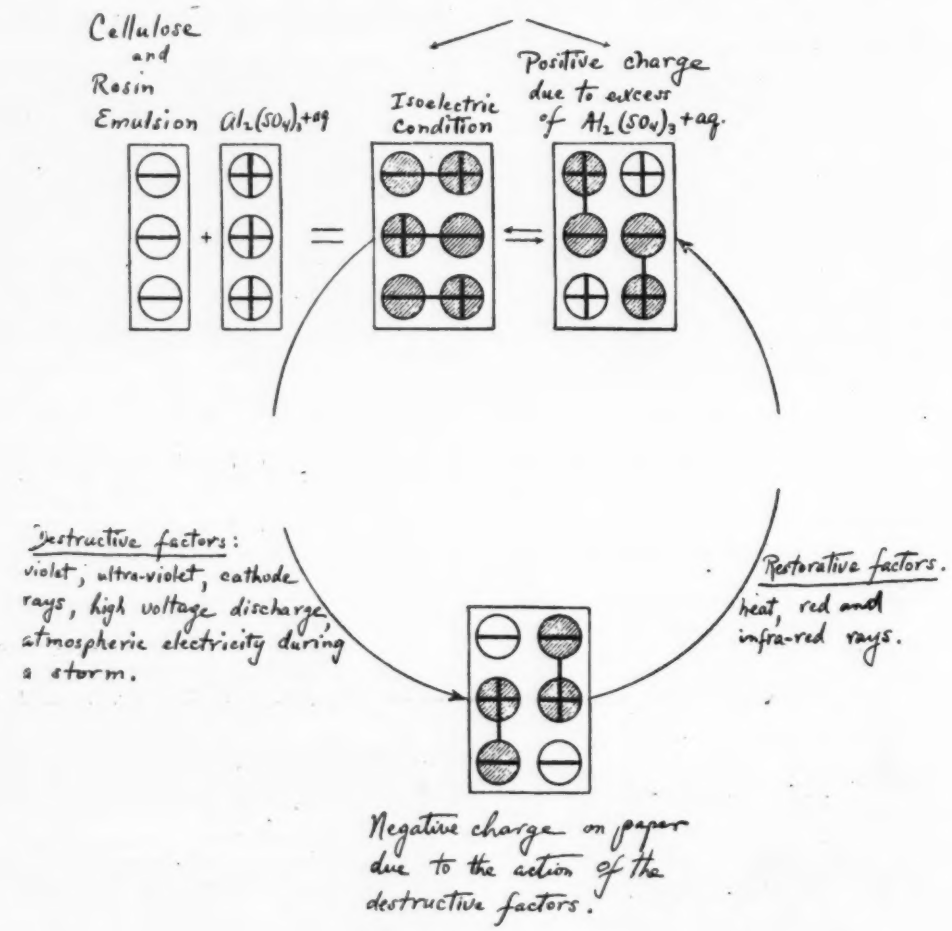

Cellulose and Rosin Emulsion
$Al_2(SO_4)_3$+aq
Isoelectric Condition
Positive charge due to excess of $Al_2(SO_4)_3$+aq.
Destructive factors: violet, ultra-violet, cathode rays, high voltage discharge, atmospheric electricity during a storm.
Restorative factors. heat, red and infra-red rays.
Negative charge on paper due to the action of the destructive factors.

FIG. No. 10

an adsorption system: cellulose—rosin—aluminum hydrate (paper).

Depending upon the quantity of aluminum sulphate used in the sizing process, two electrical states of the finished product (paper) may occur:

1. The amount of aluminum sulphate added to the stock is just sufficient to produce an isoelectric paper.

2. The aluminum sulphate added in excess causes the paper to have a positive charge.

Thus the condition of the sizing is determined by either of the two possible electrical states of the paper. In Fig. 10 an attempt is made to show diagrammatically the mechanism of the process which may take place based upon the theory stated above.

The sign + represents a quantity of positive electricity, while — stands for an equal quantity of negative electricity, and, finally, +— signifies a neutralized condition.

In conclusion, the author wishes to state that he intends to extend his investigations further to cover the action on sizing of Roentgen rays, of canal rays and other factors.

TECHNICAL SECTION, PAGE 14

Kalamazoo Board Mills Busy

KALAMAZOO, Mich., July 5, 1924.—Despite the general depression in the board industry throughout the country, the three Kalamazoo mills are enjoying unusually excellent run of business at this time

Winship Hodge, general manager of the Western Board and Paper Company, while granting his employees the regular Fourth of July vacation, reported that his plant is heavily booked with orders both for immediate and future deliveries and that any appreciable delay in shipments is regrettable.

While both mills of the Standard Paper Company have been down the past week, John F. Byrne, manager, reports that was done to make certain necessary repairs and changes on the machines. In the meantime the carton plant is running full and has a fine line of business booked up ahead.

To Rebuild Wood Flour Mill at Napanoch

NAPANOCH, N. J., June 30.—John C. Hoornbeek's Sons have contracted with Rose & Douglas for the steel girders for the reconstruction of wood flour mill recently burned here, which will begin as soon as the steel arrives. The new mill will be of entire steel and concrete construction, about the same size as the old mill, and with new machinery and with every facility to prevent a recurrence of the disaster such as recently occurred.

CURRENT PAPER TRADE LITERATURE

Abstracts of Articles and Notes of Papermaking Inventions Compiled by the Committee on Abstracts of Literature of the Technical Association of the Pulp and Paper Industry

CLARENCE J. WEST, CHAIRMAN

Drying

Paper Machine Driers. E. Bascou and L. Dunoyer. Fr. pat. 563,167. The driers are completely enclosed in front, at the back and at both ends, slits being provided at the ends to let the sheet pass in and out. A powerful ventilation system is provided for blowing warm air under the driers and drawing it off at the top. The front panel is arranged so as to be easily and rapidly raised to give access to the machine, and it is connected with the ventilating system so as to automatically reduce the blast when it is raised and restore the original force when the panel is lowered in place.—A. P.-C.

Heat Economy in Machine Room Ventilation. T. J. Higgins. *Pulp & Paper* 22, 115-116 (Jan. 24, 1924); *Paper* 33, No. 15, 19-20 (Jan. 31, 1924). A discussion of the importance of proper and efficient ventilation adapted to the special conditions in each case so as to have enough but not too much ventilation, which is very wasteful.—A. P.-C.

Theory and Calculation of Paper Machine Driers. *Papeterie* 46, 23-25 (Jan. 10, 1924). Brief review of recent articles.—A. P.-C.

Steel Calenders. C. Haubold. Fr. pat. 561,616. The calender rolls are made of hardened steel, which allows of using rolls not more than 12 to 13 in. in diameter and up to 200 in. long.—A. P.-C.

Minton's Vacuum Paper Machine Drier. *Paper Trade J.* 78, No. 3, 50 (Jan. 17, 1924). A brief description of a semi-commercial vacuum paper drying machine recently perfected by Ogden Minton, in which drying is accomplished at a little over 100 deg. F., under a vacuum of about 27.5 in. of mercury.—A. P.-C.

Paper Specialties

Production of Fat-Resistant, Waterproof, and Air-Tight Metallic Paper. Katharine Wickel geb. Holecek. Ger. pat. 382,519. *Papierfabr.* 22, 28 (Jan. 20, 1924). The process of producing fat-resistant, waterproof, and air-tight metallic paper, resistant against oxidation, consists in using a bituminous substance as a binding material for the metallic powder. This bituminous material, as asphalt, may be used as such, or dissolved in some hydrocarbon or other solvent not acid-forming, as carbon tetrachloride, tetralin, etc.—J. L. P.

Manufacture of Fancy-Shaded Paper. Else Bieleck. Ger. pat. 387,181. *Papierfabr.* 22, 11, (Jan. 6, 1924). Paper is coated with a paste and various hand designs are produced in this material. Colors, bronze powder, etc., are subsequently added.—J. L. P.

That New Wood Product—Cellophane. James Piani. *Paper Mill* 47, No. 52, 40, 42 (Dec. 29, 1923). Cellophane is made in the same manner as viscose silk, except that it is made in sheet instead of thread form. Its properties and uses are outlined.—A. P.-C.

Printing Papers. Charles Vigreux. *Science et Indus.* 7, No. 108, 107-110 (Jan. 31, 1923). Discussion of the properties required of paper for various kinds of printing.—A. P.-C.

Special Dampening for Chromo Papers. E. Arnould. *Rev. Univ. Papeterie* 6, No. 60, 14-16 (Dec. 1923). A discussion of the difficulties encountered in obtaining a proper moistening of papers for chromolithography. The author has found a mixture of one part of glycerine with ten of water to work very satisfactorily.—A. P.-C.

Action of Cyanides on Cellulose. M. N. Komaroff. *Bum. Prom.* 2, No. 1, 140 (Jan.-Feb. 1923). Preliminary report on the action of cyanides on cellulose. Experiments showed that the fibers swell more slowly when acted upon by $Ca(CNS)_2$ than when $ZnCl_2$ is used, and even prolonged action of the cyanide causes no noticeable solution of the fiber cells. Filter paper was parchmentized by the action of $Ca(CNS)_2$, H_2SO_4, and $ZnCl_2$. The parchment paper made by the action of $Ca(CNS)_2$ gave higher bursting, breaking, stretch and folding tests and felt softer. The difference between the other two papers was insignificant. All three papers were stained blue by iodine—potassium iodide. The paper made with H_2SO_4 is least penetrated by air, the $Ca(CNS)_2$ paper next, and the $ZnCl_2$ paper most. All three resisted the passage of turpentine. Fibers treated with $Ca(CNS)_2$ on wetting change in length and width more than $ZnCl_2$ treated fibers. In thickness the change is equal. Cyanide treated fibers can be washed in half the time required for the $ZnCl_2$ treated fibers.—M. L. C.

Plater Room Management. H. M. Grasselt. *Paper Ind.* 5, 1563-1568 (Jan. 1924). A description of platers and their operations, with a discussion of methods of obtaining best results and of keeping track of the quality and quantity of work, etc.—A. P.-C.

Cardboard. G. Krantz and Germain. *Science et Indus.* 7, No. 108, 123-125 (Jan. 31, 1923). Brief outlines of its origin and history of its manufacture in France.—A. P.-C.

Coated Paper. *Science et Indus.* 7, No. 198, 119-122 (Jan. 31, 1923). Outline of the origin of coated paper, its manufacture, and of the characteristics of paper for typography and for lithography and of matt coated paper.—A. P.-C.

Machine for Making Ornamental Roofing. F. C. Overbury assignor to Flintkote Co. U. S. pat. 1,419,169, June 13, 1922. The purpose of the machine is to produce roofing shingle strips with stone surfacing, in which there will be variable areas having one color, variable areas having another color, while in the intervening areas the colors blend or shade from one to another. Roofing felt is saturated with a waterproofing composition, and is then coated on one side with pitch or asphalt having the required consistency and melting point at ordinary temperatures, and while the coating is still plastic the surfacing layer is applied. Two adjacent hoppers, one for each kind of stone, e. g., red and green slate, discharge into a trough through an oscillating multiple valve extending across the whole width of the machine and which has four passageways. These are so arranged that alternate batches of red and green stone are delivered to the trough, forming alternate strata, and the two colored strata mingle to a certain extent where they meet. In this way the sheet is given a more or less mottled appearance. It is then cooled and cut as usual.—A. P.-C.

Raw Photographic Stock. *Science et Indus.* 7, No. 108, 126-127 (Jan. 31, 1923). Outline of some of the defects which must be guarded against.—A. P.-C.

Why Is Photographic Paper Coated With Baryta? *Science et Indus.* 7, No. 108, 127-128 (Jan. 31, 1923). The chief reasons are: to obtain a smooth, brilliant, non-porous surface, and to give more sharpness and depth than could be obtained without coating.—A. P.-C.

Apparatus for Electrolytic Production of Metallic Alloys in the Form of Paste or Sludge Suitable for the Manufacture of Foil Papers. B. Leech assignor to H. &. L. Slater, Ltd. U. S. pat. 1,461,276, July 10, 1923. In order to obtain a tin (or other) paste having particles as uniform in size as possible the anodes are formed partly of the active metal and partly of a material (e. g., hard graphite) which resists electrolytic action, and means are provided for varying or adjusting the ratio of the areas of the active and resistant portions of the anode immersed in the electrolyte. The electrolyte is circulated through a group of vats which may be connected either in series or in parallel, or supplied with current independently, according to conditions, means being provided for controlling or adjusting the flow and the temperature of the electrolyte.—A. P.-C.

Machine for the Manufacture of Corrugated Board. M. Nerson. Fr. pat. 561,918. One machine is arranged so as to produce either single-faced or double-faced corrugated board. One web is put through the corrugating rolls. Over the first web is a second one to the under surface of which is applied adhesive, and under the first is a third web the top surface of which is given a coating of adhesive. The three webs are joined together under suitable pressure conditions, and passed through an appropriately heated device to dry the glue.—A. P.-C.

Fiber Board Manufacture. Raymond H. Harding. *Paper* 33, No. 13, 7-10 (Jan. 17, 1924). A detailed description of the manufacture of high grade fiber board for use as leather substitute, with a discussion of the effects of the various factors involved.—A. P.-C.

Manufacture of Music Roll Papers. Th. E. Blasweiler. *Pulp & Paper* 22, 119 (Jan. 24, 1924). See *Pulp & Paper* 21, 1271 (Dec. 27, 1923); *Paper Trade J.* 78, No. 1, 55 (Jan. 3, 1924). —A. P.-C.

Process for Manufacture of Blotting Paper From Gramineae. *Gesellschaft für Mechanische Zellulose.* Fr. pat. 560,953. The material is steamed for about 2 hrs. at 4 to 5 atmospheres' pressure, and is then beaten for about 45 min., the roll turning at a peripheral speed of about 200 m. a minute. It is then made into blotting paper as usual.—A. P.-C.

Safety Paper. Crane Co. Fr. pat. 559,660. Benzidine or one of its homologues is incorporated with the stock in the beater, or at any other suitable stage in the manufacture of the paper, about 5 parts being used for 120 oven dry stock. Attempts to remove ink by oxidizing agents discolor the benzidine compound.—A. P.-C.

Oriental Papermaking Methods. R. Bouvier and A. Ruby. *Papier* 26, 1443-1452 (Dec. 1923). A description of the manufacture of handmade paper as at present carried out in India, China, Japan, Korea and Anam.—A. P.-C.

Veneered Objects or Panels Made From Pulp. *Cellulose et Papiers.* Fr. pat. 562,861. Molded objects or wallboard panels are given a layer of suitable adhesive (gelatine, glue, detrxin, viscose, etc.) and a thin wood veneer of suitable thickness is applied and pressed against the object till the adhesive has set. In the case of objects which have a rounded or irregular surface, the veneer is soaked in water or in an alkaline solution to soften it thoroughly and allow to stand until it has shrunk almost to its original size before applying.—A. P.-C.

Miscellaneous

Modern Handling of Paper. Anton D. J. Kuhn. *Zellstoff U. Papier* 3, 266-269 (Dec. 1923). The mechanical handling of paper is discussed, especially with reference to German machinery and methods.—J. L. P.

Sorting Machines. K. Klimpke. *Wochbl. Papierfabr.* 55, 65-66 (Jan. 12, 1924). An article dealing with German machinery. Controversial with the German firm J. M. Voith.—J. L. P.

Device for Screening Paper Stock or Pulp. Hans Rinderknecht. Ger. pat. 384,732. *Papierfabr.* 21, 519 (Dec. 9, 1923). An apparatus is described for screening pulp that consists of a rotating screen with the stock entering within it.—J. L. P.

Monorail Conveying. R. J. Schadt. *Paper Ind.* 5, 1589, 1591 (Jan. 1924). A description of the monorail conveyor at the Port Angeles, Wash., mill of the Washington Pulp & Paper Corp., which is used mostly for transporting wood to the groundwood and sulphite mills and paper to the shipping wharf.—A. P.-C.

Barking Wood for the Manufacture of Pulp. Fr. Grewin and G. Soderlund. *Paper Ind.* 5, 1401-1405 (Dec. 1923). See *Pulp & Paper* 22, 18, Jan. 3, 1924; *Paper Trade J.* 48, No. 1, 57, Jan. 3, 1924.—A. P.-C.

Indentification of Paper Products, the Purpose of Six Centuries of Watermarking. Waldon Fawcett. *Paper Ind.* 5, 1558-1561 (Jan. 1924). A discussion going to show that the primary purpose of watermarking was to serve as a trade mark to distinguish the product of a given mill.—A. P.-C.

Symbolism of Paper Markings. Dard Hunter. *Paper* 33, No. 9, 3-6 (Dec. 20, 1923). A discussion of early watermarks and their significance.—A. P.-C.

Waste in the Pulp & Paper Industry. B. T. McBain. *Paper Mill* 48, No. 1, 4, 26, 28 (Jan. 5, 1924). A general outline of all the various sources of waste actually occurring in the industry.—A. P.-C.

Apprenticeship in the Pulp & Paper Industry. W. G. MacNaughton. *Paper Ind.* 5, 1585, 1587 (Jan. 1924); *Paper Trade J.* 78, No. 2, 49 (Jan. 10, 1924); *Paper* 33, No. 13, 27 (Jan. 17, 1924); *Pulp & Paper* 22, 29-30 (Jan. 10, 1924); *Paper Mill* 48, No. 3, 4 (Jan. 19, 1924). Outline of scheme presented as a basis for discussion, on which to build up a satisfactory system suitable for the requirements of the North American pulp and paper industry. —A. P.-C.

French School of Papermaking at the End of 1922. Louis Barbillion. *Sci. et Indus.* 7, No. 108, 15-18 (Jan. 31, 1923). A description of the organizing of the school, of its equipment and of the scope of its work.—A. P.-C.

History of Paper From Time of the Pharaohs to Present Day. Aime Poutot. *Sci. et Indus.* 7, No. 108, 101-104 (Jan. 31, 1924). Brief historical sketch.—A. P.-C.

Abstracts of Pulp and Paper Literature: Chemical Part. Graap. *Zellstoff U. Papier* 3, 261-265 (Dec. 1923). The abstracts are brief and are limited for the most part to German journals and patents. The period covered is July to September 1923, inclusive.—J. L. P.

Abstracts of Pulp and Paper Literature: Mechanical Part. Willy Grunewald. *Zellstoff U. Papier* 3, 272 (Dec. 1923). Very brief abstracts are given of articles in German journals. The period covered is April to July 1923.—J. L. P.

Multiple Effect Evaporation. Hugh K. Moore. *Chem. Met. Eng.* 29, Dec. 17, 1923; *Paper* 33, No. 11, 6-9 (Jan. 3, 1924). A discussion of the fundamental considerations.—A. P.-C.

Improvement in the Design of Pulp and Paper Mills. H. S. Taylor. *Paper Ind.* 5, 1553-1557 (Jan. 1924). Outline of recent progress in the utilization of electricity, and in sulphite, soda and sulphate mills, beaters and power plant design.—A. P.-C.

Selection of Material for Paper Mill Roofs. John A. Kagerhuber. *Paper Ind.* 5, 1579-1583 (Jan. 1924). A discussion of the merits of "porete" as a roofing material, as compared to wood, gypsum blocks, or solid concrete. It is a Portland cement concrete of uniformly honeycombed structure and combines the durability of concrete with the lightness and heat insulating value of wood.—A. P.-C.

Belgo's New 230-Inch "Dominion" Machine. *Pulp & Paper* 22, 63-64 (Jan. 17, 1924). A description of the outstanding features of the machine constructed by the Dominion Engineering Works, Montreal, which was started up at the Belgo-Canadian mill at the beginning of January 1924.—A. P.-C.

Well Water System in the Mill. T. H. Hammond. *Paper* 33, No. 14, 11-13 (Jan. 24, 1924). A description of the well constructed by the Layne Ohio Co. at the new plant of the Hammond Bag & Paper Co., Wellsburg, W. Va.—A. P.-C.

Floors for Shipping Rooms in Paper Mills. Charles A. Mullen. *Pulp & Paper* 22, 91-92, 101 (Jan. 24, 1924); *Paper* 33, No. 15, 16-18 (Jan, 31, 1924). A discussion of the merits of asphalt mastic flooring, as compared with wood or concrete flooring, in paper mill shipping rooms.—A. P.-C.

Water in the Paper Industry. Aribert. *Sci. et Indus.* 7, No. 108, 51-54 (Jan. 31, 1924). Outline of the water consumption in the manufacture of the various grades of pulp and paper, with a discussion of the qualities required and of the effects of the various salts dissolved in it.—A. P.-C.

Training for Industry: Papermaking. W. G. MacNaughton *Paper Trade J.* 78, No. 6, 49-50 (Feb. 7, 1924). Brief discussion of the necessity, purpose and scope of an apprenticeship system in the pulp and paper industry.—A. P.-C.

Technical Man's Place in the Future of the Papermaking Industry. George Chahoon, Jr. *Paper Mill* 48, No. 5, 10, 12, 46, 48 (Feb. 2, 1924); *Paper Ind.* 5, 1743, 1745, 1749 (Feb. 1924); *Pulp & Paper* 22, 159-162 (Feb. 7, 1924). In order to succeed in the papermaking (or other) industry the technical man must acquire "the art of organizing and directing men" as well as "controlling the forces and materials of nature." It is lack of this important accomplishment, which is not taught in schools, colleges and universities, which has so far prevented so many technical men who are undoubted leaders in their particular branches of engineering from working themselves into posts for which industry is willing and justified in paying the largest salaries.—A. P.-C.

Acidproof Mortar. P. G. Ekstrom. U. S. pat. 1,456,303, May 22, 1923. A mortar which is resistant to acids is formed from 55 to 78 parts of finely divided hard siliceous material such as blast furnace slag, 12 to 30 parts of litharge, 10 to 15 parts of a magnesium silicate material such as soapstone, and water glass. —A. P.-C.

Sulphite Liquor. G. A. Richter. Can. pat. 235,427, Nov. 6, 1923. A sulphite solution is produced by absorption, the uncombined SO_2 is recovered from the relief liquor by passing tail gas through the liquor and this enriched tail gas is passed back to the system at a point where the gas in the system has approximately the same SO_2 content as the enriched gas.—A. P.-C.

Cooling and Absorbing System for Sulphur Dioxide. G. A. Richter and G. E. Wightman. Can. pat. 235,282, Oct. 30, 1923. The hot burner gases are passed countercurrent in direct contact with cold water and then passed through an absorbing medium; SO_2 absorbed by the cooling water is recovered and delivered to the absorbing medium. This recovery is effected by passing the tail or unabsorbed gases through the heated cooling.—A. P.-C.

A Liquid Sulphur Dioxide Process for Sulphite Pulp. II. Its Application to Longleaf Pine. Ralph H. McKee and Donald E. Cable. *Paper Trade J.* 17, No. 10, 53-56 (Mar. 6, 1924); No. 11, 47-50 (Mar. 13, 1924). Previous work (*Pulp & Paper 22, 226; Paper Trade J.* 78, No. 11, 52) was carried out on scrub pine (*Pinus virginiana*) which is low in resins. Experiments with long leaf pine (*Pinus palustris*) are described carried out with a view to ascertaining the suitability of the process for the treatment of highly resinous wood. The authors conclude that working with five digesters, and passing the solvent from one to another, an overall extraction efficiency of over 90 per cent can be obtained reducing the resin content to a point where it would be satisfactory for the production of sulphite pulp. The nature of the extraction treatment would allow of cooking with an exceptionally strong liquor (up to 12 per cent SO_2), with consequent decrease in cooking time, increase in yield and improvement in quality of pulp. Comparison with the gasoline extraction process shows SO_2 far superior as regards cost, quality of rosin and of pulp from the extracted chips, and fire hazards. It is claimed that the process would ensure a permanent supply of naval stores by extraction of cultivated pulpwood.—A. P.-C.

Process for Digesting Wood Pulp. E. Morterud. U. S. pat. 1,478,614, Dec. 25, 1923. The formation of a scum of separated calcium salts on the surface of the digestion liquor during the indirect digestion of sulphite pulp is avoided by maintaining a sufficently high pressure in the digester during the heating operation to prevent the liberation of any substantial amount of gas above the surface of the cooking liquor.—A. P.-C.

Process of Pulp Manufacture. F. C. Thornley, F. F. Tapping and O. Reynard. Eng. pat. 208,751, Aug. 29, 1922. Sulphur dioxide gas in an extremely fine state of division, produced mechanically by intense agitation, is used in conjunction with water or aqueous solutions or suspensions of alkaline materials for the resolution of finely-divided cellulosic materials, such as sawdust, wood waste, rushes, bamboo, etc., which is itself subjected to intense agitation during the treatment. The operation is carried out in a gas-tight vat fitted with a vertical shaft capable of rapid rotation and carrying one or more agitators. The liquor (e. g., 900 gal. per ton of raw material) may contain 8 to 16 lb. of sodium hydroxide, or an approximately chemically equivalent quantity of other basic substances, per 100 gal. About 100 to 200 lb. of sulphur dioxide per ton of cellulosic material should be injected into the reaction vessel, preferably through a pipe adjacent to the foot of the vertical shaft; of this quantity 70 to 90 lb. are absorbed, the remainder being recovered for further use. After separation of the liquor and material, the former is strengthened by addition of fresh liquor and re-used until it becomes too highly charged with soluble organic constituents. It is then freed from excess of sulphur dioxide and either subjected to destructive distillation or used as sizing agent or as a binder.—A. P.-C.

Method of Cooking Sulphite Pulp. C. M. Bullard. U. S. pat. 1,468,353, Sept. 18, 1923. In order to prevent scaling of the heating elements in the indirect process of cooking sulphite pulp, the liquid is agitated while it is being heated. Liquor is drawn from the top of the digester and passed through a heater through which steam is circulated. In the heater is a screw conveyor which violently agitates the liquor and delivers it to the lower part of the digester. The conveyor can be made hollow and steam circulated through it. Usually no precipitate forms in the heater, but should any collect the steam supply is cut off, and when the liquor has cooled somewhat it rapidly redissolves the scale.—A. P.-C.

Process of Making Pulp. J. and J. Billwiller. Eng. pat. 206,570, Aug. 4, 1922. Either previous to, or in conjunction with, the usual sulphite of soda process, the material is digested at high temperature and under high pressure with liquids that have the least possible carbonizing effect on the fibers, e. g., ammonia, sodium carbonate, hydrogen sulphide, etc. Example: 500 k. of wood are effectively opened up by heating to 280° C. for 10 min. with 300 l. of 2 per cent ammonium hydroxide in an iron boiler, preferably of the vertical type, provided with a suitable circulating pump.—A. P.-C.

Process for the Removal of the Red Coloration from Sulphite Pulp. Emil Heuser and Sigurd Samuelsen. Ger. pat. 388,213. *Papierfabr.* 22, Tech.-Wiss. Teil 33, (Jan. 27, 1924). To remove permanently the red coloration of sulphite pulp, it is treated in a beater with a very dilute, acid solution of persulphates of the alkali or alkaline earth elements.—J. L. P.

Steam Consumption in the Sulphite Process, with Reference to the Decker Method. Sandhubel. *Wochbl. Papierfabr.* 55, 214-217 (Feb. 2, 1924). A discussion of steam consumption and economy in the sulphite process for manufacturing pulp. More exact data are needed on the Decker injection method and no explanation has been given for the increased pulp yield claimed for it. —J. L. P.

Decker Process for Sulphite Pulp Manufacture. Zellstoffab. Waldhof. *Papierfabr.* 22, Tech.-Wiss. Teil 46 (Feb. 10, 1924). The Decker process for making sulphite pulp is comparable with the process of Suelzer (Ger. pat. 71,048). A part of this patent is reproduced and appears to be similar in principle to the Decker process. The question is raised regarding the newness of the latter process.—J. L. P.

Decker Sulphite Process. R. Dieckmann. *Wochbl. Papierfabr.* 55, 109-110 (Jan. 19, 1924). Polemic against Hawkings, in *Pulp & Paper* 21, 955-956 (1923), and Berger, same journal, 21, 1077-1078 (1923). The Decker process for cooking sulphite pulp is regarded as complicated: the valves, through which the hot waste gases pass, are considered as a source of trouble in its operation. —J. L. P.

Sulphite Cooking Process. L. B. Decker. Can. pat. 229,288 (Mar. 6, 1923), U. S. pat. 1,577,041, Dec., 1923. This is the Decker precess, which consists essentially in using a freshly-charged digester as reclaiming tank for the relief gases and relief liquor. See *Paper Trade J.* 77, No. 14, 52.—A. P.-C.

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Section of the

COST ASSOCIATION OF THE PAPER INDUSTRY

Affiliated with

THE AMERICAN PAPER AND PULP ASSOCIATION

Conducted by THOS. J. BURKE, C.A., Sec-Treas

STANDARDS FOR AREA, COUNT AND WEIGHT*

By President S. L. Willson, American Writing Paper Co.

Those engaged in the paper industry have seen constant evidence of the changes that are going on.

If we will revert to the first method of making paper and compare it with the present-day methods, we shall see the evolution that has taken place from the hand molds to the cylinder machines, and later to the fourdriniers. We shall see the change from the use of very narrow machines to those 15 and 20 feet in width. We shall see the speed changed from a few feet per minute to a thousand feet per minute. We shall also see the changes in the materials used in the production of paper.

We shall likewise see different methods of merchandising. Not many generations ago the usual practice of merchandising paper was for a jobber, through whom nearly all sales were made, to visit mills and buy up lots of paper that were on hand, ship them to his warehouse, and later sell to the printer and converter.

At that time the sizes that were most commonly used by the trade were those made and put in stock by the manufacturer awaiting the jobber's visit, and odd sizes and weights were unusual. As the new uses for paper developed, new sizes and weights were required and this ever changing process has been going on up to the present time.

Merchant Developed from Old Jobber

From the old jobber there has developed the merchant, who in reality is no longer a jobber, because the various grades of paper, the sizes, weights, and colors, have been to a great extent standardized and the present function of the merchant is to a great extent that of a distributor rather than a jobber.

There has been a further change in merchandising because of the enormous increased use of paper by publishers and converters, and the existing tendency is to sell direct by the manufacturer to the large consumers of paper instead of passing this business as formerly through the jobber and merchant.

These changes have been brought about through different business methods, because of new printing equipment, and the ever changing commodities which the public buy, and in the method used for presenting them for sale. I mention these various things for the purpose of establishing that in the paper industry there must be ever changing practices to keep the business methods coeval with the times, and point out to those who shall protest about the use of a new standard for manufacturing, that changes are the hall mark of progress which should not be interfered with except for some better reason than its being a change from what is now or has formerly been the practice.

Old Customs Continued

I have already mentioned that in the early times the manufacturer of paper, in running up stock, selected those sizes which were most commonly used. These sizes for the various grades were continued as a manufacturing base size long after the particular size became practically obsolete so far as uses were concerned. To illustrate:

24 x 36 is the basic size

used by manufacturers for news print, which at one time was the chief, if not the only size used. Today 85 per cent of the news print made is supplied in rolls, and of the 15 per cent used in sheets, probably not 5 per cent is used in size 24 x 36. We can, therefore, see there is today no relation between the manufacturing size and the use of the paper.

In book paper, the size most commonly used formerly was 25 x 38, which was adopted as the basic manufacturing size. Today approximately 60 per cent of the book paper is supplied in rolls, and of the other 40 per cent, not to exceed 10 per cent is used in size 25 x 38. You can, therefore, see there is no present relation between the basic size for book paper and its use.

In bond papers, the original basic size was 17 x 28, and for a number of years this was the manufacturing basic size. With changes in the use of paper, due to changes in business methods, printing equipment, etc., it was later changed to 16 x 21 and again changed to 17 x 22, and this is today the basic size for its manufacture.

In wrapping papers, as in news print, 24 x 36 was the most commonly used and therefore became the basic manufacturing size, but at least 60 per cent of the tonnage is now supplied in rolls and only about 10 per cent of the balance is used in sheets size 24 x 36.

You may take many of the other grades of stock and draw similar comparisons, and also draw from these comparisons, the conclusion that in the manufacturing size today there is little or no relation to the use of the paper in this size.

These conditions were the foundation for a study of some plan that would be practical and that could be put into practice without radically disrupting the industry. A study of the proposition has been going on for a number of years.

Writing Paper Men Blazed Trail

The writing paper manufacturers blazed the trail for the develop-

*Address given at meeting of the Connecticut Valley Division of the Cost Association of the Paper Industry, at Strathmore Inn, Woroncco, Mass., on June 24, 1924.

ment of a new plan, and put into effect a standard size to which substance weights were applied, using 17 x 22, or 374 square inches, as the base for manufacturing and calculating weights. This was a step far in advance of anything that had previously taken place towards standardization, and much credit is due to Mr. McElwain of the Croker-McElwain Company for his untiring efforts to bring about this splendid change, and it is only to be regretted that he did not, or perhaps could not at that time, apply the same principles to the other grades of paper and select a size which would be adopted as a universal manufacturing size with the substances applied to such selected size.

When engaged in the business as a merchant, I was often impressed with the obsolescence of the present sizes used as basic manufacturing sizes. I could never understand why a 40 lb. paper in one grade of paper should weigh any different from that of another for the same area and number of sheets, but such a condition did exist and does exist today, and will exist until some universal size has been adopted. As an illustration:

A thousand sheets of 40 lb. wrapping paper, each containing a thousand square inches would weigh 96.44 lbs.

A thousand sheets of 40 lb. book would weigh 84.2 lbs.

A thousand sheets of 40 lb. bond paper would weigh 213.9 lbs.

A thousand sheets of 40 lb. blotting would weigh 175.22 lbs.

I do not believe anyone can assign a good reason why this difference should continue to exist. It is easily understood why it exists today, but it seems an opportune time at least to discuss a proposed change if not to adopt one, and it is for the purpose of showing the benefits of the proposed plan that I am presenting it tonight.

It was during the period of the war when considerable work was done on the question of Standardization that this plan suggested itself to those in charge of the work in Washington, and there has been slow development in the idea since, largely because the plan is no longer supported by governmental authority.

The changes under the proposed plan would be very slight. It would mean in some cases the present weights would be increased and in other cases the present weights would be decreased, but the changes would be so small that the stocks in the hands of the merchants today could be substituted, without protest, for the new weights, and especially since the printers of the country seem to endorse this idea of standardization.

At the time substance numbers were applied to the basic manufacturing size used for writing papers, the weights for the folio were 16, 20, 24, 28, the same as they are today, but for 17 x 28 and 19 x 24, the same weights applied namely, 16, 20, 24, and 28. This compelled the manufacturer in making the two latter sizes to run a different weight of paper because of the fact that the weights were not proportionate with the weights of the basic manufacturing size. When the change was made from arbitrary weights to the substance numbers, this evil was remedied and the weights changed to make them proportionate with the area of the 17 x 22 sheet.

Loss Practically Nothing

This change was protested on the grounds that it would create obsolete papers in the hands of the merchant, but my experience as a merchant gives me knowledge of the fact that the losses and the difficulties resulting from this change were practically nothing, and those who protested at the time to this change, heartily endorsed the plan as it has worked out.

In book papers the same condition existed. We had 25 x 38, 40, 50, 60, 70, 80, and 100. We also had 28 x 42, 32 x 44, 36 x 48, and other sizes to which even decimal weights were applied—50, 60, 70 and 80, regardless of the size, and which weights were not proportionate to the basic manufacturing size weights.

This, as in the case of the writing papers, compelled the merchant, in getting out his samples, to use a separate sheet for each size and weight. To remedy this the proportionate weights were figured out for the sizes other than the basic size, and while there was some protest to this change, everyone now agrees that it was a wise thing to do, and those who protested at the time, now doubtless endorse the change.

Principal Objections

The principal objections to the proposed plan are:

First—That obsolete stocks would be created in the hands of the merchants and manufacturer.

Second—That a change from established practices to the new practice would be confusing to the printers and converters.

Third—The loss sustained on the part of the merchant by making their sample books not representative of their merchandise.

Fourth—That in many cases a pound or two per ream of paper not wanted and unnecessary will have to be paid for.

On the part of the manufacturers, the following might be some objections:

First—That the stocks on hand would not conform to the new weights under the proposed plan and difficulty would result in merchandising same.

Second—That hydration and beating of fibres influence thickness.

Third—That the principle of the universal size cannot practically be applied to all grades of paper.

Objections Considered

Considering these objections in order:

First—Obsolete Stocks—In putting this plan into effect, there would be a date set for its operation far enough in advance to enable the merchant and manufacturer to market the papers they have on hand while getting ready for the new plan.

Second—Inasmuch as the printers, through their various organizations, have heartily endorsed the proposed 25 x 40 basic size for manufacturing, I believe there would be little or no protest from them, and while it might be for a short time confusing, it would in time free them from much trouble in figuring odd sizes and in the merchandising of their goods.

Third—The merchant changes his sample books every few years—and his present sample sets would be representative of qualities and colors—and near enough to represent weights, as the proposed changes would be scarcely more than the usual tolerances permitted in manufacturing.

Fourth—The objections to the increased weights which might be necessary under this plan would be, in a measure, offset by the decreased weights in some cases, and the operation of the proposed plan would be similar to that which resulted when the change was made in writing papers and book papers. In a few years it would not be thought of and everybody would doubtless endorse the plan as they did the changes in writing and book papers.

The Manufacturers' Claim

In the case of the manufacturers' claim, the hydration and beating of fibres influence thickness, I contend that this has no bearing upon the subject as we are not discussing thickness, but weights, and if a discussion should be confined to the effect of hydration on thickness, the manufacturers of writing and book papers would have no defense when we consider the differences between ripple, kid, and unglazed finishes, as compared with machine, machine glazed, and super finishes, because here we see the differences in thicknesses.

The real problem is to get a universal manufacturing size so that a certain weight paper containing the same area and number of sheets will weigh the same whether in one grade or in another. At present, manufacturing sizes and weights are arbitrary and have no relation to present uses.

Explanation of 25 x 40 Basis

I wish to draw your attention to the printed forms which have been distributed to you, containing an explanation of the 25 x 40

basis, and a list of 25 x 40 substance numbers for all grades, as follows:

1—Tissue
2—Manifold, Bond, Writing and Ledger
3—Book
4—Wrapping
5—News Print
6—Cover
7—Blotting
8—Mill Bristol
9—Index Bristol
10—Blanks Plain
11—Blanks C 1 S
12—Blanks C 2 S
13—Translucent
14—Tough Check
15—Railroad
16—Thick China
17—Straw, Chip and Combination Boards

I will ask you to examine these carefully, and shall be happy to answer any questions you may wish to ask regarding this list.

An interesting discussion started by Col. B. A. Franklin, vice-president of the Strathmore Paper Company then took place, following which, a hearty vote of thanks was extended to Mr. Willson for his kindness in making the address. In replying to this vote of thanks, Mr. Willson stated that he had not expected to make an address, but had promised Mr. James A. Reilly, president of the Cost Association to attend the meeting to discuss the standardization plan. When he heard he was to be the speaker of the evening, Mr. Willson stated, that "I did not care to withdraw, inasmuch as I appreciate the fact that we presidents must stand together."

The following is the plan as outlined in the printed forms distributed by Mr. Willson.

Explanation of 25 x 40 *Basis*

The suggested plan is to adopt a standard unit for area; a standard unit for count; and a standard unit for weight.

The area unit being 1,000 square inches and represented by size 25 x 40.

The count unit to be 1,000 sheets, instead of 480 or 500 sheets as now used.

The weight or substance unit being determined by the actual weight of 1,000 sheets each containing 1,000 square inches and designated by a Substance number corresponding to that weight. For instance:

1,000 sheets, each containing 1,000 square inches and weighing 10 pounds shall be designated as Substance No. 10.

1,000 sheets, each containing 1,000 square inches and weighing 50 pounds shall be designated as Substance No. 50.

1,000 sheets, each containing 1,000 square inches and weighing 100 pounds shall be designated as Substance No. 100.

The weight in any grade of 1,000 sheets, each containing 1,000 square inches, would be the Substance, as well as the actual or nominal weight, and the weight of 1,000 sheets of any size, containing more or less than 1,000 square inches, would be in proportion to the substance weight.

Under this plan there would be established the following manufacturing chart:

A spread of 5 between Substance No. 10 to No. 100.
A spread of 10 between Substance No. 100 to No. 250.
A spread of 25 between Subsance No. 250 and No. 800.
A spread of 50 between Substance No. 800 and No. 1,500.
A spread of 100 between Substance No. 1,500 and No. 2,500.

COMPARATIVE TABLES SHOWING 25X40 SUBSTANCE WEIGHTS APPLIED TO VARIOUS GRADES OF PAPER

LIST OF 25x40 SUBSTANCE NUMBERS FOR ALL GRADES

Substance Spread	Area Unit	Sub. No.
5	25x40	10
		15
		20
		25
		30
		35
		40
		45
		50
		55
		60
		65
		70
		75
		80
		85
		90
		95
10	25x40	100
		110
		120
		130
		140
		150
		160
		170
		180
		190
		200
		210
		220
		230
		240
25	25x40	250
		275
		300
		325
		350
		375
		400
25	25x40	425
		450
		475
		500
		525
		550
		575
		600
		625
		650
		675
		700
		725
		750
		775
50	25x40	800
		850
		900
		950
		1,000
		1,050
		1,100
		1,150
		1,200
		1,250
		1,300
		1,350
		1,400
		1,450
100	25x40	1,500
		1,600
		1,700
		1,800
		1,900
		2,000
		2,100
		2,200
		2,300
		2,400
		2,500

The changes in present weights used would be so slight under this proposed plan that the difference would not be apparent to the eye or hand, and no more than the usual tolerance now permitted in manufacturing.

The following is recommended:

1. To adopt 25 x 40 or 1,000 square inches as a Standard Area unit for manufacturing.
2. To adopt 1,000 sheets as a Standard Unit for count.
3. To adopt 1,000 sheets of 1,000 square inches as the Standard Unit for substance or weight, the substance number corresponding to the actual weight of the unit of area and count.

Nearly all purchases except paper are made upon the decimal basis: *i. e.*—tens, hundreds, or thousands. Most printing jobs are figured upon the basis of 1,000 sheets—although paper purchases are made on the basis of weight for 500 sheets. The suggested plan to eliminate reams and establish 1,000 sheets as a unit for count and substance weight would harmonize the basis for buying and selling and has many advantages. Here are some of them.

1. It corrects an obsolete practice of using a basis for manufacturing that has little or no relation to the use or method of computing values or areas.
2. It establishes an intelligible and practical size for use in the manufacture of all grades.
3. It establishes a condition where a given substance indicates the same weight per 1,000 sheets for all grades when the area of the sheet is the same, and where any other size is of proportionate weight.
4. It makes easy the figuring of special sizes and reduces liabilty of errors.
5. It simplifies the commodity from a manufacturing and merchandising standpoint, and establishes a basis easily understood and consistent.
6. It establishes an "area unit"—to fit in with present units, such as:

Inches, the unit of Measurement
Pounds, the unit of Weight

Dollars, the unit of Value.

7. An added advantage is the ease of conversion into the metric system of grams per square meter, by the simple factor of 0.7 (7-10).

TISSUE

Size	Old Ream Weight 500 Sheets	New Ream Weight 500 Sheets	New Weight 1,000 Sheets	25x40 Substance Number
24x36	*10.4	10.8	21.6	25

*Adjusted to 500 sheet basis instead of 480.

SPECIAL SIZES

Using the 25 x 40 basis of calculation, the weight of 1,000 sheets of any special size can be determined simply by multiplying the area by the indicated substance and dividing by 1,000.

For example, to find the weight of 1,000 sheets 20 x 30—No. 25 Tissue:

$$\frac{20 \times 30 \times \text{No. } 25}{1{,}000} = \frac{15{,}000}{1{,}000} \text{ or 15 lbs. per 1,000 sheets,}$$

or 7½ lbs., for 500 sheets.

To find the Substance Number multiply the weight by 1,000 and divide by the area:

Example: To find the Substance Number of 20 x 30—15 lb. Tissue:

$$\frac{\text{Weight (15 lb.)} \times 1{,}000}{\text{Area of sheet (600 sq. in.)}} = \frac{15{,}000}{600} = 25 \text{ which}$$

is the 25 x 40 Substance Number.

MANIFOLD, BOND, WRITING AND LEDGER

Size	Old Ream Weight 500 Sheets	New Ream Weight 500 Sheets	New Weight 1,000 Sheets	25x40 Substance Number
17x22	7	7.5	15	40
17x22	9	9.3	18.7	50
17x22	11	11.2	22.5	60
17x22	13	13	26	70
17x22	16	17	34	90
17x22	20	20.5	41	110
17x22	24	24.5	49	130
17x22	28	28	56	150
17x22	32	31.7	63.5	170
17x22	36	35.5	71	190
17x22	40	39.2	78.5	210
17x22	44	43	86	230
17x28	9	9.5	19	40
17x28	11.5	12	24	50
17x28	14	14.2	28.5	60
17x28	16.5	16.7	33.5	70
17x28	20.5	21.5	43	90
17x28	25.5	26.2	52.5	110
17x28	30.5	31	62	130
17x28	35.5	35.7	71.5	150
17x28	40.5	40.5	81	170
17x28	46	45.2	90.5	190
17x28	51	50	100	210
17x28	56	54.7	109.5	230
19x24	16	16	32	70
19x24	19.5	20.5	41	90
19x24	24.5	25	50	110
19x24	29.5	29.6	59.3	130
19x24	34	34.2	68.4	150
19x24	39	38.75	77.5	170
19x24	44	43.3	86.6	190
19x24	49	48	96	210
19x24	53.	52.5	105	230
22x34	32	34	68	90
22x34	40	41	82	110
22x34	48	49	98	130
28x34	41	43	86	90
28x34	51	52.5	105	110
28x34	61	62	124	130
24x38	49	50	100	110
24x38	59	59.2	118.5	130
24x38	68	68.4	136.8	150

BOOK

Size	Old Ream Weight 500 Sheets	New Ream Weight 500 Sheets	New Weight 1,000 Sheets	25x40 Substance Number
24x36	27	28	56	65
24x36	32	32.4	64.8	75
24x36	36	36.7	73.4	85
24x36	41	41	82	95
24x36	45	47.5	95	110
24x36	55	56.1	112.3	130
24x36	64	64.8	129.6	150
24x36	73	73.5	147	170
24x36	82	82	164	190
24x36	91	90.7	181.5	210
24x36	109	108	216	250
26x29	24	24.5	49	65
26x29	28	28.2	56.5	75
26x29	32	32	64	85
26x29	36	35.8	71.6	95
26x29	40	41.5	83	110
26x29	48	49	98	130
26x29	56	56.5	113	150
26x29	63	64	128	170
26x29	71	71.6	143.2	190
26x29	79	79.1	158.3	210
26x29	95	94.2	188.5	250
25x38	30	30.8	61.7	65
25x38	35	35.6	71.2	75
25x38	40	40.3	80.7	85
25x38	45	45.1	90.2	95
25x38	50	52.2	105.5	110
25x38	60	61.7	123.5	130
25x38	70	71.2	142.5	150
25x38	80	80.7	161.5	170
25x38	90	90.2	180.5	190
25x38	100	99.7	199.5	210
25x38	120	118.7	237.5	250
30½x41	39	40.6	81.2	65
30½x41	46	46.9	93.8	75
30½x41	53	53.1	106.3	85
30½x41	59	59.4	118.8	95
30½x41	66	68.7	137.5	110
30½x41	79	81.2	162.5	130
30½x41	92	93.7	187.5	150
30½x41	105	106.2	212.5	170
30½x41	118	118.8	237.6	190
30½x41	132	131.3	262.6	210
30½x41	158	156.3	312.6	250
32x44	44	45.7	91.5	65
32x44	52	52.8	105.6	75
32x44	59	59.8	119.6	85
32x44	67	66.8	133.7	95
32x44	74	77.5	155	110
32x44	89	91.5	183	130
32x44	104	105.6	211.2	150
32x44	119	119.7	239.4	170
32x44	133	133.7	267.5	190
32x44	148	147.8	295.7	210
32x44	178	176	352	250
33x46	48	49.3	98.6	65
33x46	56	57	114	75
33x46	64	64.5	129	85
33x46	72	72.1	144.2	95
33x46	80	83.5	167	110
33x46	96	98.6	197.3	130
33x46	112	113.8	227.7	150
33x46	128	129	258	170
33x46	144	144.2	288.4	190
33x46	160	159.4	318.8	210
33x46	192	189.7	379.5	250
35x45½	50.5	51.7	103.5	65
35x45½	58.7	59.7	119.4	75
35x45½	66.7	67.6	135.3	85
35x45½	75.8	75.6	151.2	95
35x45½	84	87.5	175	110
35x45½	100	103.5	207	130
35x45½	117	119.4	238.8	150
35x45½	134.5	135.3	270.7	170
35x45½	150.6	151.2	302.5	190
35x45½	167.8	167.2	334.4	210
35x45½	201.2	199	398	250
29x52	48	49	98	65
29x52	56	56.5	113	75
29x52	64	64	128	85
29x52	72	71.6	143.2	95
29x52	80	82.9	165.8	110
29x52	96	98	196	130
29x52	112	113.1	226.2	150
29x52	126	128.2	256.4	170
29x52	142	143.2	286.5	190
29x52	158	158.3	316.6	210
29x52	190	188.5	377	250
38x50	60	61.7	123.5	65
38x50	70	71.2	142.5	75
38x50	80	80.7	161.5	85
38x50	90	90.2	180.5	95
38x50	100	104.5	209	110
38x60	120	123.5	247	130
38x50	140	142.5	285	150
38x50	160	161.5	323	170
38x50	180	180.5	361	190
38x50	200	199.5	399	210
38x50	240	237.5	475	250
41x61	78	81.2	162.5	65
41x61	92	93.8	187.6	75
41x61	106	106.2	212.5	85
41x61	118	118.7	237.5	95
41x61	132	137.5	275	110
41x61	158	162.5	325	130
41x61	184	187.5	375	150
41x61	210	212.5	425	170
41x61	236	237.5	475	190
41x61	264	262.6	525.2	210
41x61	316	312.6	625.2	250
44x64	88	91.5	183	65
44x64	104	105.6	211.2	75
44x64	118	119.6	239.2	85
44x64	134	133.7	267.5	95

(*Continued on page* 58)

Storage and Sprinkler Tanks as well as Processing Tanks and Acid Towers to meet all Paper Mill requirements. High grade Cypress, Cedar, or Fir—well seasoned. Immediate shipment. Expert erecting crews to install.

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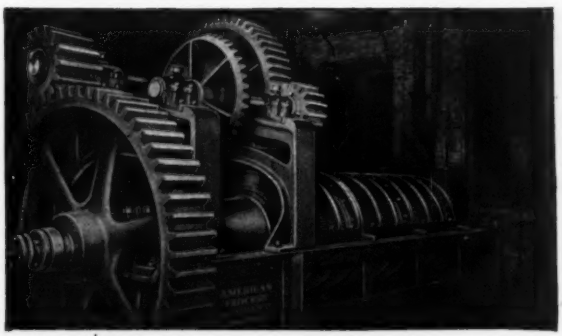

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SEND FOR SAMPLES AND PRICES

Imports of Paper and Paper Stock

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

WEEK ENDING JULY 5, 1924

SUMMARY

News print.....3,572 rolls
Printing paper....141 rolls, 437 cs., 373 bls., 40 pgs.
Cigarette paper.....251 cs.
Paper hangings.....10 pgs., 31 bls., 13 cs.
Surface coated paper.....127 cs.
Colored paper.....35 cs.
Filter paper.....16 cs., 47 bls.
Drawing paper.....51 cs.
Wall paper.....630 pgs., 9 cs., 5 bls.
Wrapping paper.....81 bdls., 483 bls., 5,733 rolls
Packing paper.....1,403 bls., 40 cs., 55 rolls
Glazed paper.....2 cs.
Marble paper.....4 cs.
Miscellaneous paper..66 cs., 716 rolls, 679 bls., 84 pgs., 400 bdls.
Writing paper.....24 cs.
Cover paper.....4 cs.
Tissue paper.....16 cs.
Metal paper.....14 cs.

CIGARETTE PAPER

F. P. Gaskell & Co., Editor, Havre, 90 cs.
Standard Products Corp., by same, 100 cs.
Liggett & Myers Tobacco Co., by same, 12 cs.
N. Stephenson, Braga, Constantinople, 14 cs.
The Surbrug Co., Aquitania, Havre, 15 cs.
Rose & Frank, by same, 20 cs.

WALL PAPER

Whiting & Patterson, Aquitania, Havre, 9 cs.
Equitable Trust Co., Rotterdam, Rotterdam, 630 pgs.
G. J. Hunken & Co., Resolute, Hamburg, 1 bl.
F. J. Emmerick, Deutschland, Hamburg, 4 bls.

PAPER HANGINGS

W. H. S. Lloyd & Co., Adriatic, Liverpool, 10 pgs.
W. H. S. Lloyd & Co., Minnetonka, London, 9 bls.
W. H. S. Lloyd & Co., by same, 3 cs.
W. H. S. Lloyd & Co., Belgenland, London, 2 cs.
W. H. S. Lloyd & Co., by same, 17 bls.
A. C. Dodman, Jr., Inc., Laconia, Liverpool, 5 bls.
A. C. Dodman, Jr., Inc., by same, 8 cs.

WRAPPING PAPER

Blauvelt, Wiley Paper Mfg. Co., Columbia, Glasgow, 81 bdls.
A. E. MacAdam, Drottningholm, Gothenburg, 6 bls.
A. E. MacAdam, by same, 705 rolls.
Import Paper Co., Deutschland, Hamburg, 30 bls.
National City Bank, by same, 30 bls.
National City Bank, by same, 2,019 rolls.
Corn Exchange Nat'l Bank, by same, 1,167 rolls.
Gilson Bros., Mongolia, Hamburg, 7 rolls.
F. C. Strype, by same, 417 bls.
Corn Exchange Nat'l Bank, Cleveland, Hamburg, 1,835 rolls.

PACKING PAPER

J. P. Heffernan Paper Co., Cleveland, Hamburg, 318 bls.
Steffens, Jones & Co., Huronian, Hamburg, 34 cs.
Steffens, Jones & Co., Rotterdam, Rotterdam, 6 cs.
J. P. Heffernan Paper Co., Beutschland, Hamburg, 678 bls.
Republic Bag & Paper Co., Anaconda, Rotterdam, 407 bls., 55 rolls.

NEWS PRINT

Traders Paper Co., Mongolia, Hamburg, 289 rolls.
Bowater Paper Co., by same, 78 rolls.
Chemical Nat'l Bank, by same, 107 rolls.
J. B. Harris, Bergensfjord, Frederickhold, 163 rolls.
Parsons & Whittemore, West Maximus, Kotka, 2,775 rolls.
Chemical Nat'l Bank, Huronian, Hamburg, 160 rolls.

PRINTING PAPER

Seaman Paper Co., Huronian, Hamburg, 119 rolls.
Thos. Nevin, Minnetonka, London, 2 cs.
J. H. Scott Paper Co., Cleveland, Hamburg, 22 rolls.
A. G. Nelson, by same, 41 cs.
M. O'Meara Co., Muenchen, Bremen, 31 cs.
M. O'Meara Co., by same, 12 bls.
L. Schulman, by same, 72 bls.
H. Reeve Angel Co., by same, 289 bls.
H. Schutte & Co., V. Florio, Genoa, 29 cs.
Falsing Paper Co., Deutschland, Hamburg, 40 pgs.
P. C. Zuhlke, Huronian, Antwerp, 80 cs.
M. O'Meara Co., Westpoint, Kotka, 58 cs.
C. B. Hewitt, by same, 52 cs.
L. Schulman, by same, 64 cs.

MARBLE PAPER

L. de Jonge & Co., Huronian, Antwerp, 4 cs.

SURFACE COATED PAPER

Gevaert Co. of America, Huronian, Antwerp, 63 cs.
P. C. Zuhlke, Huronian, Antwerp, 64 cs.

WRITING PAPER

C. A. Reddin, Editor, Havre, 2 cs.
H. Reeve Angel & Co., Belgenland, Antwerp, 1 cs.
American Tempex Co., Deutschland, Hamburg, 12 cs.
Guibout Freres, Olympic, Havre, 9 cs.

DRAWING PAPER

Devoe & Raynolds Co., Belgenland, London, 1 cs.
E. Dietzgen & Co., Deutschland, Hamburg, 19 cs.
E. Dietzgen & Co., Anaconda, Rotterdam, 5 cs.
Keuffel & Esser, Rotterdam, Rotterdam, 26 cs.

COVER PAPER

F. C. Strype, Rotterdam, Rotterdam, 4 cs.

TISSUE PAPER

Standard Products Corp., Aquitania, Havre, 8 cs.
Brooks Paper Co., Adriatic, Liverpool, 3 cs.

FILTER PAPER

H. Reeve Angel & Co., Belgenland, Antwerp, 12 cs.
C. G. Euler, La Bourdonnais, Bordeaux, 45 bls.
Zinckeisen & Co., Deutschland, Hamburg, 2 bls.
E. H. Sergeant & Co., Drottningholm, Gothenburg, 4 cs.

METAL PAPER

Hensel, Bruckman & Lorbacher, Deutschland, Hamburg, 14 cs.

PAPER

Import Paper Co., Deutschland, Hamburg, 14 cs.
American Shipping Co., by same, 17 cs.
R. N. Delapenha, Roma, Marseilles, 3 cs.
DuPont Cellophane Co., Rochambeau, Havre, 18 cs.
Melby, Kutroff Co., Fred. VIII, Kristiania, 53 bls.
Melby, Kutroff Co., by same, 89 rolls.
Hudson Trading Co., Mongolia, Hamburg, 104 rolls.
Hudson Trading Co., by same, 64 pgs.
Great Eastern Paper Co., by same, 400 bdls.
Alling & Cory Co., Cleveland, Hamburg, 241 bls.
Manhattan Paper Co., Inc., by same, 319 rolls.
M. O'Meara Co., by same, 20 pgs.
Lord & Taylor, France, Havre, 14 cs.
J. P. Heffernan Paper Co., Resolute, Hamburg, 250 bls.
M. M. Cohen, Drottningholm, Gothenburg, 135 bls.
M. M. Cohen, by same, 204 rolls.

RAGS, BAGGINGS, ETC.

E. J. Keller Co., Inc., Muenchen, Bremen, 53 bls. rags.
Albion Trading Co., by same, 4 bls. rags.
D. M. Hicks, Editor, Dunkirk, 25 bls. thread waste.
M. Wolfer, Orizaba, Havana, 41 bls. rags.
E. J. Keller Co., Inc., V. Florio, Algiers, 210 bls. rags.
E. J. Keller Co., Inc., Fred. VIII, Copenhagen, 121 bls. rags.
E. J. Keller Co., Inc., by same, 140 bls. new cuttings.
Salomon Bros. & Co., Cleveland, Hamburg, 39 bls. rags.
J. Lang Paper Co., by same, 410 bls. rags.
New England Waste Co., F. Maru, Genoa, 66 bls. cotton waste.
Belgian Bank, Minnetonka, London, 41 bls. rags.
P. Berlowitz, Caucasier, Antwerp, 144 bls. rags.
Brown Bros. & Co., Exeter City, Bristol, 102 bls. waste paper.
A. W. Fenton, Inc., Rotterdam, Rotterdam, 16 bls. rags.
Anglo South American Trust Co., by same, 50 bls. rags.
S. Birkenstein Sons, Luxpabile, Leghorn, 463 bls. rags.
Whaling Waste Products Co., Anaconda, Rotterdam, 29 bls. rags.
Reis & Co., by same, 16 bls. cotton waste.
Castle & Overton, by same, 19 bls. rags.
E. J. Keller Co., Inc., by same, 36 bls. rags.
E. J. Keller Co., Inc., Gaasterdyk, Rotterdam, 40 bls. rags.
E. J. Keller Co., Inc., Carlier, Antwerp, 166 bls. rags.
Castle & Overton, by same, 145 bls. rags.
Castle & Overton, by same, 90 bls. bagging.

OLD ROPE

Castle & Overton, American Farmer, London, 21 coils.
Anglo South American Trust Co., V. Florio, Genoa, 450 coils.
E. J. Keller Co., Inc., Fred. VIII, Copenhagen, 452 coils.
E. J. Keller Co., Inc., Gaasterdyk, Rotterdam, 54 coils.
W. Schall & Co., Cleveland, Hamburg, 36 coils.
Brown Bros. & Co., by same, 90 coils.
Brown Bros. & Co., Galileo, Hull, 129 coils.
Anglo South American Trust Co., F. Maru, Genoa, 287 coils.
Guaranty Trust Co., F. Maru, Leghorn, 149 coils.
Brown Bros. & Co., Exeter City, Bristol, 301 coils.
Brown Bros. & Co., Pr. Roosevelt, Bremen, 10 coils.
Brown Bros. & Co., Rotterdam, Rotterdam, 194 coils.
G. M. Graves Co., by same, 60 coils.

WOOD PULP

Pagel, Horton & Co., Inc., Innaren, Gefle, 11,376 bls. wood pulp.
Lagerloef Trading Co., West Maximus, 985 tons chemical pulp.
Johaneson, Wales & Sparre, Inc., Stockholm, Gothenburg, 125 bls. kraft pulp.
Johaneson, Wales & Sparre, Inc., Westport, Kramfors, 10,320 bls. sulphite pulp.
Bulkley, Dunton & Co., by same, 1,750 bls. wood pulp.
Scandinavian Pulp Agency, Inc., Innaren, Skutskar, 2,650 bls. wood pulp.
Scandinavian Pulp Agency, Inc., Frederick VIII, Gothenburg, 254 bls., 50 tons sulphite pulp.
Bulkley, Dunton & Co., Frederick VIII, Kristiania, 2,500 bls., 500 tons mechanical pulp.
Poland Paper Co., Bergensfjord, Kristiania, 1,500 bls. sulphite pulp.
J. Andersen & Co., Bergensfjord, Sarpsborg, 600 bls. sulphite pulp.
The Borregaard Co., by same, 300 bls. sulphite pulp.
The Borregaard Co., by same, 240 bls. sulphate pulp.
E. M. Sergeant Co., Bergensfjord, Kristiania, 275 bls. chemical pulp.
Atterbury & McKelvey, by same, 300 bls. sulphite pulp.
Bulkley, Dunton & Co., by same, 2,500 bls. mechanical pulp.
Hartig Pulp Co., Cleveland, Hamburg, 250 bls., 51 tons wood pulp.
Bulkley, Dunton & Co., Westport, Heidiksvall, 5,000 bls., 1,016 tons sulphite pulp.
Bulkley, Dunton & Co., by same, 2,750 bls., 558 tons sulphate pulp.
J. Andersen Co., by same, 1,200 bls., 152 tons sulphite pulp.
Johanesson, Wales & Sparre, Inc., Westport,

(Continued on page 58)

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Test it
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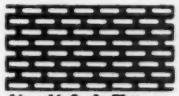

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Address Nearest Office
Westinghouse Electric & Mfg. Co.
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W
WESTINGHOUSE ELECTRIC

Westinghouse

Imports of Paper and Paper Stock

(*Continued from page 56*)

Harnosand, 10,320 bls., 1,747 tons sulphite pulp.
Johaneson, Wales & Sparre, Inc., Drottningholm, Gothenburg, 125 bls. sulphite pulp.
E. M. Sergeant Co., by same, 762 bls. wood pulp.
Castle & Overton, Anaconda, Rotterdam, 267 bls., 58 tons wood pulp.

WOOD PULP BOARDS

Lagerloef Trading Co., West Maximus, Kotka, 1,611 bls., 230 tons.
Chase National Bank, Westport, Helsingfors, 156 bls., 32 tons.

WOOD FLOUR

B. L. Solinski, Bergensfjord, Frederickstad, 1,500 bgs.

CHINA CLAY

English China Clay Sales Corp., Spain Maru, Fowey, 2,619 tons, 16 cwt.

PHILADELPHIA IMPORTS

WEEK ENDING JULY 5, 1924

Paper House of Pennsylvania, Westport, Kotka, 1,486 rolls news print.
Paper House of Pennsylvania, by same, 163 cs. printing paper.
Drinhausen, Hollkott Paper Co., Anaconda, Rotterdam, 90 rolls hanging stock.
Franklin Paper Co., by same, 82 rolls packing paper.
Franklin Paper Co., by same, 1,124 bls. packing paper.
Castle & Overton, Editor, Dunkirk, 643 bls. rags.
E. J. Keller Co., Inc., by same, 87 bls. rags.
Castle & Overton, Tahale, Antwerp, 76 bls. rags.
Castle & Overton, Anaconda, Rotterdam, 1,267 bls. rags.
E. J. Keller Co., Inc., by same, 253 bls. rags.
S. Birkenstein Sons, by same, 65 bls. rags.
D. J. Murphy, by same, 60 bls. bagging.
Castle & Overton, Rotterdam, 90 bls. rags.
Lagerloef Trading Co., Westport, Helsingfors, 315 bls., 51 tons sulphite pulp.
Lagerloef Trading Co., Westport, Kotka, 255 bls., 51 tons, mechanical pulp.
Johaneson, Wales & Sparre, Inc., Westport, Franno, 2,664 bls. kraft pulp.
Johaneson, Wales & Sparre, Inc., Westport, Kansfors, 1,500 bls., sulphite pulp.
Castle & Overton, Germany, 550 bls. wood pulp.
W. Brodie, Anaconda, Rotterdam, 934 bls., 45,300 ks. wood flour.

BALTIMORE IMPORTS

WEEK ENDING JULY 5, 1924

Lagerloef Trading Co., West Maximus, Kotka, 2,965 bls., 508 tons sulphite pulp.
Lagerloef Trading Co., West Maximus, Helsingfors, 240 bls., 23 tons mechanical pulp.
Castle & Overton, Rotterdam, 1,122 bls. wood pulp.
Castle & Overton, West Inskip, Rotterdam, 260 bls. wood pulp.
Castle & Overton, Rotterdam, 90 bls. rags.
E. J. Keller Co, Inc., Breedyk, Amsterdam, 366 bls. rags.

BOSTON IMPORTS

WEEK ENDING JULY 5, 1924

Pagel, Horton & Co., Inc., Innaren, Skutskar, 4,000 bls. wood pulp.
Scandinavian Pulp Agency, Inc., by same, 2,250 bls. wood pulp.
Bulkley, Dunton & Co., Innaren, Gefle, 1,350 bls. wood pulp.
Pagel, Horton Co., Inc., by same, 1,000 bls. wood pulp.
Nilsen, Lyon & Co., Inc., W. Maximus, Kotka, 1,350 bls., 225 tons sulphate pulp.
Castle & Overton, West Haven, Rotterdam, 143 bls. wood pulp.

PORTLAND, MAINE, IMPORTS

WEEK ENDING JULY 5, 1924

Scandinavian Pulp Agency, Inc., Innaren, Skutskar, 2,500 bls. wood pulp.
Lagerloef Trading Co., 1284 tons chemical pulp.

NEW ORLEANS

WEEK ENDING JULY 5, 1924

Lagerloef Trading Co., 25 tons chemical pulp.
Lagerloef Trading Co., West Mamimus, 985 tons chemical pulp.
Pagel, Horton & Co., Inc., by same, 8,000 bls. wood pulp.
English China Clay Sales Corp., Spain Maru, Fowey, 1,862 tons, 10 cwt. china clay.
Moore & Munger, by same, 2,993 tons china clay.

STANDARDS FOR AREA AND WEIGHTS

(*Continued from page 54*)

Size	Old Ream Weight 500 Sheets	New Ream Weight 500 Sheets	New Weight 1,000 Sheets	25x40 Substance Number
44x64	148	154.9	309.8	110
44x64	178	183	366	130
44x64	208	211.2	422.4	150
44x64	238	239.3	478.7	170
44x64	266	267.5	535	190
44x64	296	295.7	591.4	210
44x64	356	352	704	250
WRAPPING				
24x36	*26.25	26	52	60
24x36	31.5	30.2	60.5	70
24x36	36.7	34.5	69	80
24x36	42	43.2	86.4	100
24x36	52.5	51.8	103.7	120
24x36	63	64.8	129.6	150
24x36	73.5	73.4	146.8	170
24x36	84	82	164	190
24x36	94.5	95	190	220
24x36	105	103.7	207.4	240

* Weights adjusted to 500 sheet basis instead of 480 sheets.

NEWS PRINT				
24x36	32	32.4	64.8	75
COVER				
20x26	25	26	52	100
20x26	35	36.4	72.8	140
20x26	40	39	78	150
20x26	45	44.2	88.4	170
20x26	50	49.4	98.8	190
20x26	65	65.	130	250
20x26	80	78	156	300
23x33	34	34.1	68.3	90
23x33	53	53.1	106.2	140
23x33	56	56.9	113.8	150
23x33	65	64.5	129	170
23x33	72	72.1	144.2	190
23x33	95	94.8	189.7	250
23x33	117	113.8	227.7	300

Size	Old Ream Weight 500 Sheets	New Ream Weight 500 Sheets	New Weight 1,000 Sheets	25x40 Substance Number
BLOTTING				
19x24	60	62.7	*125.4	275
19x24	70	68.4	136.8	300
19x24	80	79.8	159.6	350
19x24	90	91.2	182.4	400
19x24	100	102.5	205	450
19x24	120	125.5	251	550
19x24	140	136.8	273.6	600
MILL BRISTOL				
22½x28½	100	96.2	*192.4	300
22½x28½	110	112.2	224.4	350
22½x28½	120	120.2	240.4	375
22½x28½	140	144.2	288.5	450
22½x28½	160	160.3	320.6	500
22½x28½	180	176.3	352.6	550
22½x28½	200	192.3	384.7	600
INDEX BRISTOL				
20½x24½	72	69.7	*139.5	275
20½x24½	91	88.7	177.5	350
20½x24½	111	114.1	228.3	450
20½x24½	145	139.5	279	550
25½x30½	110	107	214	275
25½x30½	140	136.2	272.5	350
25½x30½	170	175.2	350.4	450
25½x30½	220	214.1	428.3	550

* The weight per 100 sheets can be determined by pointing off one place.

BLANKS PLAIN				
22x28 3 ply	222	215.6	*431.2	700
22x28 4 ply	268	261.8	523.6	850
22x28 5 ply	292	292.5	585	950
22x28 6 ply	341	338.8	677.6	1,100
22x28 8 ply	430	431.2	862.4	1,400
22x28 10 ply	520	523.5	1,047	1,700
BLANKS C1S				
22x28 3 ply	251	246.4	*492.8	800
22x28 4 ply	300	292.5	585	950
22x28 5 ply	349	338.8	677.6	1,100
22x28 6 ply	408	400.4	800.8	1,300
22x28 8 ply	465	462	924	1,500
22x28 10 ply	560	554.4	1,108.8	1,800
22x28 12 ply	673	677.6	1,355.2	2,200
BLANKS C2S				
22x28 3 ply	273	277.2	*554.4	900
22x28 4 ply	324	338.8	677.6	1,100
22x28 5 ply	373	369.6	739.2	1,200
22x28 6 ply	430	431.2	862.4	1,400
22x28 8 ply	487	492.8	985.6	1,600
22x28 10 ply	584	585.2	1,170.4	1,900
22x28 12 ply	698	708.4	1,416.8	2,300

* The weight per 100 sheets can be determined by pointing off one place.

(*Continued on page 64*)

The Home of Quality

FACTORY
132ND TO 133RD ST. & BROOK AVE

PAPER BAGS and SACKS

GLASSINE BAGS—SPECIALTIES

Operating a Modern Printing Plant

SCHORSCH & CO.

Manufacturers *Established 1901*

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This Registered Trade Mark Octagon

on a Paper Bag vouches for Its Good Quality

WE ARE PLEASED TO ANNOUNCE THAT

FREDERIC T. BOLES

HAS ACQUIRED A SUBSTANTIAL INTEREST IN OUR COMPANY AND HAS BEEN ELECTED FIRST VICE-PRESIDENT AND TREASURER

LACEY SECURITIES CORPORATION
332 SOUTH MICHIGAN AVENUE
CHICAGO

June 28, 1924

Clay

300 Tons daily

Entire production of a group of mines under one management insures uniformity in quality and minimum production costs.

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AMERICAN MADE FOR AMERICAN TRADE

THE MINER EDGAR CO.

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FOURDRINIER WIRES

Dandy Rolls, Cylinder Molds,
Steel, Brass and Bronze
Wire Cloth
Bank and Office Railings.

CHENEY BIGELOW WIRE WORKS
Established 1842
SPRINGFIELD MASS.

J. ANDERSEN & CO.

21 EAST 40th STREET, NEW YORK CITY

Importers of Chemical Pulps

BLEACHED and UNBLEACHED

Agents for Kellner Partington Paper Pulp Co., Ltd.
Sarpsborg, Norway; Forshaga, and Edsvalla, Sweden.
Kronstädter Papierstoff—Fabriks Actien—Gesellschaft
Mills at Tuciansky, Sv. Martin

Market Quotations

PAPER SECURITIES CLOSING PRICES TUESDAY

Reported by Stewart Tuttle & Co., Inc., 120 Broadway, New York

Stocks	BID	ASKED
Abitibi Power and Paper Company, Ltd.	56½	57⅛
Abitibi Power and Paper Company, Ltd, Pfd.	99	101
American Writing Paper Company, Pfd.	3½	4
Brompton Pulp and Paper Company, Ltd.	29	30½
Donnacona Paper Company, Ltd.	45	50
Donnacona Paper Company, Ltd., Pfd.	98	100
International Paper Company	50½	50⅞
International Paper Company, Pfd.	71¾	72
Laurentide Company, Ltd.	85½	87
Price Brothers	41⅛	41⅞
St. Maurice Paper Co., Ltd.	85	89
Smith (Howard) Paper Mills, Ltd.	40½	44
Spanish River Pulp and Paper Mills, Ltd.	104⅞	105½
Spanish River Pulp and Paper Mills, Pfd.	112	112½
Union Bag and Paper Corp.	46¾	49
Wayagamack Pulp and Paper Company, Ltd.	33	35
West Virginia Pulp and Paper Company	50	54

Bonds	BID	ASKED
Abitibi Power and Paper Company, Ltd., 1st 6s, 1934	99	101
Abitibi Power and Paper Company, Ltd., Gen. 6s 1940	93	95
Abitibi Power and Paper Company, Ltd., Con. 8s 1931	102½	103¼
Belgo Canadian Paper Company, 1st 6s 1943	93¼	93¾
Brown Company Serial 6s	98	98½
Carthage Sulphite Pulp and Paper Company, 1st 8s 1941	35	50
Continental Paper and Bag Mills Corporation, 1st and Ref. 6½s, Series "A," 1944	90	92½
Donnacona Paper Company, Ltd., 1st 6s 1940	97	100
Eddy Paper Company, 1st 7½s 1931	96½	98½
Gair (Robert) Company, 1st 7s 1937	95	96
International Paper Company, 1st and Ref. 5s (Series "B") 1947	85½	86
Mattagami Pulp and Paper Company, 1st 6s 1937	58	60
Mattagami Pulp and Paper Company, 1st 7s 1949	20	25
Oswego Falls Corporation, 1st 8s 1942	101½	102
Oxford Paper Company, 1st and Ref. 6s (Series "A") 1947	98	100
Parker, Young Company, 1st 6½s 1944	95½	97½
Paterson Parchment Paper Company, 1st 6s (Series "A") 1938	96	97
Peshtigo Paper Company, 1st 7s (Series "B") 1942	92	94½
Price Bros. & Co., Ltd., 1st 6s (Series "A") 1943	97½	98½
Provincial Paper Mills, Ltd., 1st 6s 1940	98	100
Riordon Pulp and Paper Company, Ltd., Gen. 6s 1929	16	19
Riordon Pulp and Paper Company, Ltd., 6s 1942	80	84
Riordon Company, Ltd., 1st and Ref. 8s 1940	83	84
River Raisin Paper Company, 1st 8s 1936	103½	104½
Smith (Howard) Paper Mills, Ltd., 6s 1934	95	95½
Smith (Howard) Paper Mills, Ltd., 1st Ref. 7s 1941	92½	95
Spanish River Pulp and Paper Mills, Ltd., 1st 6s 1931	101	103
Spanish River Pulp and Paper Mills, Ltd., Gen. 8s 1941	102¾	103¾
Wayagamack Pulp and Paper Company, Ltd., 1st 6s 1951	74	77

Paper

F. o. b. Mill

Ledgers	11.00	@38.00
Bonds	9.00	@45.00
Writings—		
Extra Superfine	14.00	@30.00
Superfine	14.00	@30.00
Tub Sized	10.00	@15.00
Engine Sized	8.00	@11.00
News—		
Rolls, contract	3.65	@ 3.90
Rolls, transit	3.75	@ 4.25
Sheets	4.15	@ 4.40
Side Runs	3.00	@ 3.50
Book, Cased—		
S. & S. C.	7.25	@ 9.00
M. F.	7.10	@ 8.85
Coated and Enamel	9.00	@14.00
Lithograph	9.00	@14.00
Tissues—		
White No. 1	.75	@ .76
White No. 2	.70	@ .80
Colored	1.05	@ 1.90
Anti-Tarnish	1.35	@ 1.90
Kraft	.85	@ 1.10
Manila	.75	@ .80
Kraft—		
No. 1 Domestic	5.50	@ 6.25
No. 2 Domestic	5.00	@ 5.75
Imported	4.75	@ 5.20
Manila—		
No. 1 Jute	7.50	@ 9.00
No. 2 Jute	7.75	@ 8.50
No. 1 Wood	4.75	@ 5.25
No. 2 Wood	4.00	@ 4.50
Butchers	4.00	@ 4.50
Fibre Papers—		
No. 1 Fibre	5.50	@ 5.75
No. 2 Fibre	4.75	@ 5.25
Common Bogus	2.40	@ 2.60
S. Screening	3.25	@ 3.75
Card Middles	4.00	@ 5.00

Boards—per ton—		
News	40.00	@55.00
Straw	40.00	@45.00
Chip	37.50	@42.50
Binders' Boards	70.00	@75.00
Sgl. Mla. Lt. Chip	50.50	@55.50
Wood Pulp	70.00	@75.00
Container	57.50	@65.00
Sulphate Screenings—		
Coarse	.80	@ .90
Refined	1.75	@ 2.00
Ground Wood—		
Screenings	20.00	@25.00
Glassine—		
Bleached, basis 25 lbs.	12.00	@15.00
Bleached, basis 20 lbs.	14.00	@17.00

Mechanical Pulp

(Ex-Dock)

No. 1 Imported	35.00	@40.00

(F. o. b. Mill)

No. 1 Domestic	27.50	@34.00

Chemical Pulp

(Ex-Dock, Atlantic Ports)

Sulphite (Imported)—		
Bleached	3.75	@ 4.50
Easy Bleaching	2.90	@ 3.10
No. 1 strong unbleached	2.60	@ 2.80
No. 2 strong unbleached	2.20	@ 2.40
No. 1 Kraft	2.50	@ 2.85
Sulphate—		
Bleached	3.50	@ 3.65

(F. o. b. Pulp Mill)

Sulphite (Domestic)—		
Bleached	3.50	@ 4.50
Easy Bleaching Sulphite	2.50	@ 2.90
News Sulphite	2.40	@ 2.60
Mitscherlich	3.00	@ 3.75
Kraft (Domestic)	2.50	@ 2.80
Soda Bleached	3.90	@ 4.10

Domestic Rags

New Rags

Prices to Mill, f. o. b. N. Y.		
Shirt Cuttings—		
New White, No. 1	13.00	@13.50
New White, No. 2	6.25	@ 6.75
Silesias, No. 1	7.50	@ 8.00
New Unbleached	10.50	@11.00
Washables	5.50	@ 6.15
Fancy	6.50	@ 7.00
Blue Overall	8.00	@ 8.50
New Blue	5.50	@ 6.00
New Black Soft	4.65	@ 5.15
New Light Seconds	3.00	@ 3.25
O. D. Khaki Cuttings	4.75	@ 5.00
Men's Corduroy	4.00	@ 4.25
New Canvas	7.00	@ 7.50
New Black Mixed	2.75	@ 3.00

Old Rags

White, No. 1—		
Repacked	6.50	@ 7.00
Miscellaneous	5.50	@ 5.75
White, No. 2—		
Repacked	4.25	@ 4.50
Miscellaneous	3.75	@ 4.00
St. Soiled, White	2.80	@ 3.00
Thirds and Blues—		
Repacked	3.62½	@ 3.87½
Miscellaneous	2.90	@ 3.15
Black Stockings	3.75	@ 4.00
Roofing Rags—		
Cloth Strippings	1.90	@ 2.00
No. 1	1.65	@ 1.75
No. 2	1.55	@ 1.65
No. 3	.75	@ .85
No. 4	.90	@ 1.00
No. 5A	1.50	@ 1.60

Foreign Rags

New Light Silesias	7.50	@ 8.75
Light Flannelettes	8.00	@ 8.25
Unbl'chd Cottons	9.00	@ 9.50
New White Cuttings	11.50	@12.50
New Light Oxfords	7.75	@ 8.25
New Light Prints	7.25	@ 7.75
New Mixed Cuttings	3.25	@ 3.75
New Dark Cuttings	3.00	@ 3.50
No. 1 White Linens	9.00	@10.00
No. 2 White Linens	7.00	@ 8.00
No. 3 White Linens	6.00	@ 6.50
No. 4 White Linens	4.50	@ 5.50
Old Extra Light Prints	4.00	@ 4.50
Ord. Light Prints	3.00	@ 3.50
Med. Light Prints	2.40	@ 2.50
Dutch Blue Cottons	3.50	@ 4.00
Ger. Blue Cottons	3.00	@ 3.25
Ger. Blue Linens	3.50	@ 4.00
Checks and Blues	2.25	@ 2.50
Dark Cottons	1.50	@ 1.75
Shoppery	1.40	@ 1.60
French Blues	3.25	@ 3.75

Bagging

Prices to Mill F. o. b. N. Y.

Gunny No. 1—		
Foreign	1.60	@ 1.70
Domestic	1.55	@ 1.65
Wool, Tares, light	1.40	@ 1.50
Wool, Tares, heavy	1.40	@ 1.50
Bright Bagging	1.15	@ 1.25
Sound Bagging	.90	@ 1.00
Manila Rope—		
Foreign	6.25	@ 6.50
Domestic	6.50	@ 6.75
New Bu. Cut	2.40	@ 2.60
Hessian Jute Threads—		
Foreign	2.40	@ 2.60
Domestic	2.10	@ 2.20

Old Waste Papers

(F. o. b. New York)

Shavings—		
Hard, White, No. 1	3.25	@ 3.60
Hard, White, No. 2	2.90	@ 3.10
Soft, White, No. 1	2.45	@ 2.70
Flat Stock—		
Stitchless	1.30	@ 1.40
Over Issue Mag.	1.35	@ 1.45
Solid Flat Book	1.20	@ 1.30
Crumpled No. 1	1.90	@ 1.00
Solid Book Ledger	1.80	@ 1.90
Ledger Stock	1.30	@ 1.40
New B. B. Chips	.50	@ .55
Manilas—		
New Env. Cut	2.45	@ 2.55
New Cut. No. 1	1.65	@ 1.90
Extra No. 1 old	1.30	@ 1.40
Print	.80	@ .90
Container Board	.60	@ .70
Bogus Wrapper	.60	@ .70
Old Krafts Machine compressed bales	1.65	@ 1.75
News—		
No. 1 White News	1.65	@ 1.75
Strictly Overissue	.80	@ .90
Strictly Folded	.55	@ .65
No. 1 Mixed Paper	.45	@ .55
Common Paper	.35	@ .40

Twines

Cotton—(F. o. b. Mill)—		
No. 1	.43	@ .48
No. 2	.41	@ .43
No. 3	.40	@ .42
India, No. 6 basis—		
Light	.19	@ .20
Dark	.17	@ .19
B. C., 18 basis	.41	@ .42
A. B. Italian, 18 Basis	.51	@ .61
Finished Jute—		
Dark, 18 basis	.30	@ .31
Light, 18 basis	.28	@ .30
Jute Wrapping, 3-6 Ply—		
No. 1	.20	@ .23
No. 2	.18	@ .20
Tube Rope—		
4-ply and larger	.15	@ .17
Fine Tube Yarn—		
5-ply and larger	.20	@ .28
4-ply	.21	@ .24
3-ply	.22	@ .25
Unfinished India—		
Basis	.14	@ .15
Paper Makers' Twine		
Balls	.11	@ .13
Box Twine, 2-3 ply	.14	@ .15
Jute Rope	.15	@ .16
Amer. Hemp, 6	.30	@ .32
Sisal Hay Rope—		
No. 1 Basis	.14	@ .16
No. 2 Basis	.10	@ .12
Sisal Lath Yarn—		
No. 1	.14	@ .15
No. 2	.11	@ .13
Manila Rope	.18	@ .19

CHICAGO

[FROM OUR REGULAR CORRESPONDENT]

Paper

F. o. b. Mill

All Rag Bond	35	@ 40
No. 1 Rag Bond	25	@ 35
No. 2 Rag Bond	14	@ 25
Water Marked Sulphite	9	@ 12
Sulphite Bond	7¼	@ 10¼
Sulphite Ledger	9½	@ 12
Superfine Writing	18	@ 24
No. 1 Fine Writing	14	@ 18
No. 2 Fine Writing	12	@ 14
No. 3 Fine Writing	9	@ 12
No. 1 M. F. Book	5¾	@ 7½
No. 1 S. & S. C. Book	6¼	@ 7¾
Coated Book	8	@ 10
Coated Label	8	@ 10
News—Rolls, mill	3¼	@ 4½
News—Sheets, mill	4	@ 4¼
No. 1 Manila	4¼	@ 6¼
No. 1 Fibre	4¼	@ 5½
No. 2 Manila	3¼	@ 4¼
Butchers' Manila	3¼	@ 4¼
No. 1 Kraft	5½	@ 6
No. 2 Kraft	4¼	@ 5
Wood Tag Boards	4½	@ 6
Sulphite Screenings	2¼	@ 2¾
Boards, per ton—		
Plain Chip	$35.00	@40.00
Solid news	37.50	@42.50
Manila Line Chip	50.00	@52.50
Container Lined—		
85 Test	57.50	@62.50
100 Test	62.50	@67.50

Old Papers

F. o. b. Chicago

Shavings—		
No. 1 Hard White	3.00	@
White Envel. Cuttings	3.00	@
No. 1 Soft Shav.	2.65	@ 2.75
No. 1 Mixed	1.25	@ 1.35
No. 2 Mixed	1.15	@ 1.25
Ledgers and Writings	1.45	@ 1.50
Solid Books	1.40	@ 1.50

No. 1 Books, Light.	1.25	@	1.30
Blanks	1.75	@	1.80
Ex. No. 1 Manila..	1.90	@	2.00
Manila Envelope Cuttings	3.10	@	2.15
No. 1 Manilas...	1.00	@	1.05
Folded News (over issue)	.90	@	1.00
Old Newspapers—			
No. 1	.85	@	.90
No. 2	.70	@	.75
Mixed Papers—			
No. 1	.75		
No. 2	.70		
Straw Clippings	.80	@	—
Binders' Clippings..	.80	@	—
Kraft	2.00	@	2.10
New Kraft Cuts...	2.10	@	2.15
Roofing Stock, f. o. b. Chicago, Net Cash—			
No. 1	$33.00	@	—
No. 2	31.00	@	—
No. 3	29.00	@	—
No. 4	29.00	@	—

PHILADELPHIA

[FROM OUR REGULAR CORRESPONDENT]

Paper

Bonds	.09½	@	.53
Ledgers	.15	@	.40
Writings—			
Superfine	.15	@	.20
Extra fine	.12	@	.22
Fine	.20	@	.30
Fine, No. 2	.20	@	.25
Fine, No. 3	.15	@	.20
Book, M. F.	.09¼	@	.12¼
Book, S. S. & C..	.11	@	.15
Book, Coated	.14¼	@	.20
Coated Lithograph.	.10	@	.15
Label	.10	@	.15
News	.05	@	.07
No. 1 Jute Manila	.12	@	.13
Manila Sul., No. 1	.08	@	.10
Manila No. 2	.07½	@	.08
No. 2 Kraft	—	@	.08½
No. 1 Kraft	—	@	.09½
Common Bogus	.03½	@	.04
Shaw Board	55.00	@	60.00
News Board	42.50	@	45.00
Chip Board	40.00	@	45.00
Wood Pulp Board.	2.75	@	3.00
(Carload Lots)			
Binder Boards—			
Per ton	70.00	@	75.00
Carload lots	65.00	@	70.00
Tarred Felts—			
Regular	61.00	@	63.00
Slaters	66.00	@	68.00
Best Tarred, 1-ply (per roll)	1.70	@	1.80
Best Tarred, 2-ply (per roll)	1.50	@	1.60
Best Tarred, 3-ply.	2.00	@	2.10

Bagging

F. o. b. Phila.

Gunny No. 1—			
Foreign	1.60	@	1.65
Domestic	1.75	@	—
Manila Rope	6.00	@	6.37½
Sisal Rope	1.25	@	—
Mixed Rope	1.30	@	—
Scrap Burlaps	1.00	@	1.25
Wool Tares, heavy.	2.00	@	2.13
Mixed Strings	1.30	@	—
No. 1, New Lt. Burlap	2.00	@	—
New Burlap Cuttings	2.00	@	2.25

Old Papers

F. o. b. Phila.

Shavings—			
No. 1, Hard White	4.00	@	4.10
No. 2, Hard White	3.25	@	3.50
No. 1 Soft White	3.00	@	3.10
No. 2 Soft White	1.75	@	2.00
No. 1 Mixed	1.60	@	1.75
No. 2 Mixed	1.25	@	1.50
Solid Ledger Stock.	2.00	@	2.25
Writing Paper	2.00	@	—
No. 1 Books, heavy	1.80	@	1.90
No. 2 Books, light	1.40	@	1.50
No. 1 New Manila.	2.50	@	2.60
No. 1 Old Manila..	1.75	@	2.00
Container Manila...	1.20	@	1.25
Old Kraft	2.25	@	2.50
Overissue News	1.25	@	1.35
Old Newspaper	.75	@	.80
No. 1 Mixed Paper.	.70	@	.75
Common Paper	.50	@	.60
Straw Board, Chip.	.75	@	.80
Binders Bd., Chip..	.75	@	.80

Domestic Rags—New.

Price to Mill, f. o. b. Phila.

Shirt Cuttings—			
New White, No. 1	.12½	@	.13½
New White, No. 2	.07	@	—
Silesias, No. 1	.08¼	@	.08½
New Unbleached.	.11	@	.11½
Washable	.05½	@	.05¾
Fancy	.07	@	.07¼
Cottons—according to grades—			
Blue Overall	.09	@	.09¼
New Blue	.03¼	@	.04
New Black Soft.	.06	@	.06¼
New Light Seconds	.03½	@	.03¾
Khaki Cuttings..	.05½	@	.06
Corduroy	.04	@	.04½
New Canvas	.10½	@	.11
New Black Mixed	.05¼	@	.05½
Old			
White, No. 1—			
Repacked	7.50	@	8.00
Miscellaneous	6.25	@	6.50
White, No. 2—			
Repacked	.05½	@	.06
Miscellaneous	.04¾	@	.05½
Thirds and Blues—			
Repacked	3.75	@	—
Miscellaneous	3.00	@	—
Black Stockings..	4.00	@	4.50
Roofing Stock—			
No. 1	1.75	@	1.85
No. 2	1.65	@	1.75
No. 3	1.15	@	1.20
No. 4	1.25	@	1.35
No. 5A	1.40	@	—
B	1.25		nominal
C	1.15		nominal

BOSTON

[FROM OUR REGULAR CORRESPONDENT]

Paper

Bonds	.09	@	.63
Ledgers	.09	@	.55
Writings	.08½	@	.42
Superfine	.16	@	.26
Fine	.15	@	.18
Books, S. & S. C..	.07¼	@	.12
Books, M. F.	.07¼	@	.09¼
Books, coated	.09	@	.15
Label	.09	@	.13
News, sheets	4.75	@	6.00
News, rolls	4.00	@	4.50
Manilas—			
No. 1 Manila	6.00	@	7.00
No. 1 Fiber	.06½	@	.07
No. 1 Jute	9.00	@	10.50
Kraft Wrapping	.07	@	—
Common Bogus	3.50	@	3.85

Boards

(Per Ton Destination)

Chip	42.50	@	45.00
News, Vat Lined	44.00	@	45.00
Wood, Vat Lined..		@	52.50
Filled News Board.	45.00	@	47.50
Solid News Board, No. 4 Finish	60.00	@	—
S. Manila Chip	57.50	@	62.50
Pat. Coated News..	75.00	@	85.00

Old Papers

Mixed paper	.50	@	.55
Folded news	.62½	@	.65
Soft white shavings	2.60	@	2.75
Hard white shavings	3.50	@	3.75
Kraft paper	1.90	@	2.00
Ledger and letter..	2.15	@	2.35
No. 1 books and magazines	1.35	@	1.50
Manila paper No. 1	1.70	@	1.75
Solid ledgers	2.30	@	2.75
No. 1 roofing rags.	1.65	@	1.70
No. 2 roofing rags.	1.50	@	1.60
No. 3 gunny bagging	.75	@	.85
No. 4 Brussels and hard back carpets,	1.60	@	1.70
No. 5 roofing rags			
A's	.90	@	1.00
B's		@	
C's		@	
No. 6 City dump rags		@	
Manila rope, domestic	.6	@	.6½
Mixed strings	1.20	@	1.35
Jute strings	1.40	@	1.50

TORONTO

Paper

(Mill Prices to Jobbers f. o. b. Mill)

Bond—			
Sulphite	.11	@	.12½
Light tinted	.12	@	.13½
Dark tinted	.13½	@	.15
Ledgers (sulphite).	—	@	.13
Writing	.09½	@	.12
News, f. o. b. Mills—			
Rolls (carloads)..	3.75	@	—
Sheets (carloads)	—	@	4.50
Sheets (2 tons or over)	—	@	4.75
Book—			
No. 1 M. F. (carloads)	9.00	@	—
No. 2 M. F. (carloads)	8.00	@	—
No. 3 M. F. (carloads)	7.50	@	—
No. 1 S. C. (carloads)	9.50	@	—
No. 2 S. C. (carloads)	8.50	@	—
No. 1 Coated and litho	14.50	@	—
No. 2 Coated and litho	13.50	@	—
No. 3 Coated and litho	12.75	@	—
Wrapping—			
Rag Brown	4.75	@	—
White Rag	5.25	@	—
"B" Manila	5.50	@	—
No. 1 Manila	6.50	@	—
Fiber	6.50	@	—
Kraft, M. F.	7.00	@	—
M. G.	7.15	@	—

Pulp

(F. o. b. Mill)

Ground wood	$26.00	@	28.00
Sulphite easy bleaching	55.00	@	60.00
Sulphite news grade	50.00	@	55.00
Sulphite, bleached.	75.00	@	80.00
Sulphate	60.00	@	65.00

Old Waste Paper

(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut..	3.60	@	—
Soft White Book shavings	2.80	@	—
White Blk. News.	1.60	@	—
Book and Ledger—			
Flat Magazine and Book Stock(old)	1.35	@	—
Light and Crumpled Book Stock	1.20	@	—
Ledgers and Writings	1.68	@	—
Solid Ledgers	2.00	@	—
Manilas—			
New Manila Cut.	—	@	1.60
Printed Manilas..	1.10	@	—
Kraft	2.05	@	—
News and Scrap—			
Strictly Overissue.	.80	@	—
Folded News	.80	@	—
No. 1 Mixed Papers	—	@	.40
Domestic Rags—			
Price to mills, f. o. b. Toronto			Per lb.
No. 1 White shirt cuttings	.13¼	@	.13½
No. 2 White shirt cuttings	.06½	@	.07
Fancy shirt cuttings	.06½	@	.06¾
No. 1 Old Whites		@	
Third and blues..	.04¾	@	.05
			Per cwt.
Black stockings...	.03	@	—
Roofing stock:			
No. 1	—	@	—
No. 2	—	@	—
Manila rope	.06½	@	.06¾
No. 2	1.55	@	—

Obituary

Harry W. Cook

BRUNSWICK, Maine, July 7, 1924.—Harry W. Cook, superintendent of the Bowdoin paper mill, Topsham, for more than 30 years, died here last week at the age of 65 from a malignant throat growth. Born in Gardiner, Me., in 1859, he was a well known figure in the Maine paper trade, with a wide experience in book, manilla and newspaper field. He was a member of the Bellview Lodge, I. O. O. F. of Niagara Falls, Casco encampment of Brunswick, and St. Paul's Episcopal church. Besides his wife, Mrs. O. Cook, he is survived by a sister, Mrs. W. E. Brown of Gardiner, Me.

Enos W. Wellington

[FROM OUR REGULAR CORRESPONDENT.]

HOLYOKE, Mass., July 8, 1924.—Enoe W. Wellington, 84, a verteran papermaker and for many years superintendent of the Parsons Division of the American Writing Paper Company here, died last week at his home in Monroe, Vt.

German Paper Industry in Bad Shape

WASHINGTON, D. C., July 9, 1924.—The economic situation of the German paper industry has changed noticeably for the worst since April according to a report to the Paper Division of the Department of Commerce from Trade Commissioner Allport at Berlin. In his report Mr. Allport says in part:—

"No orders are being received on account of the credit and currency difficulties and many reductions in operation have followed. The prices in the world markets are lower than the manufacturing costs which are augmented by the high taexs and freight rates and also by the high cost of raw materials. In the occupied territories it is difficult to keep the mills running on account of transportation conditions which are very bad. In the pulp industry there is no difficulty in obtaining raw materials although prices are advancing. Prices quoted on ground wood advanced during the first half of May but remained stationary during the remainder of the month."

New York Market Review

OFFICE OF THE PAPER TRADE JOURNAL,
WEDNESDAY, JULY 9, 1924.

Another holiday broke in on last week and helped to interrupt business in the paper market. Despite this fact, however, there appears to be a continuance of the better tone noted a week ago. This week opened up most encouragingly and at this writing promises to be one of the best weeks of business in some time. This is particularly encouraging when it is noted that the slight improvements not only affects one or two items but extends pretty thoroughly through the list. Prices are holding firm and not as much stock is accumulating as has been the case recently. This, is, for the most part, due to the curtailing of production but it is also due, in part, to an increased demand. Paper men who have been inclined to despondency over conditions are becoming more hopeful. Orders are not only picking up somewhat but an unusual number of inquiries are being received daily and it is only a matter of time when a goodly proportion of these will materialize into genuine business. In view of the varied adverse conditions this is all very gratifying. It is the summer of business discontent. The hot weather is on in earnest and there is the rush of vacationists to shore and mountain. A business boom never comes at this time and is never expected. Business almost wearies of its own momentum during July and August and it is to be wondered at that, following such a protracted dull period, the paper market should evince even a slight revival of interest as is noted at this time. And then the Democratic convention is to be reckoned with. There are those who may scoff at this as a business factor but there is no gainsaying that the convention has New York business upset. One paper man declared it was worse than the World Series. True it is that the average business man has become so interested in the convention proceedings that he finds it difficult to stay at his desk. The radio is much more inviting and there are many who succumb to the lure. This acts as a business deterrent as seen in unanswered letters left lying on desks, orders held up for a more favorable opportunity and general business indifference. When the convention is really over there is many a mind that will be able to settle down once more to business routine as it has not been able to do for many a day.

There was no change during the past week in news print. The demand is steady. Book papers are picking up although the buying is still of the hand to mouth variety. Writing papers move steadily and the prices hold firm. The market is not glutted with stock and few concessions to obtain sales are reported.

Tissues continue slow as they have been for some weeks. It is expected that the demand in this line will undergo a marked improvement before the month is over.

Board business is still a matter of hand to mouth buying and it is said that the Democratic convention has had a distinct slowing down effect in this line.

Mechanical Pulp

There has been no change either in the price or the demand for mechanical pulp. The business is fair.

Chemical Pulp

Chemical pulp business has picked up a little during the last week. Some good orders are being booked and prices are holding firm. There still continues to be a scarcity of good imported pulp in the market.

Rags

Rags appear to be in better demand in all lines. This is gratifying for, while the better grades have been picking up, it was not until the past week that the lower grades have been picking up, it was not until the past week that the lower grades began to show any signs of improvement. Prices remain steady, there being no marked changes in quotations.

Old Rope and Bagging

Old rope is showing perceptible gains, the market being quite strong at this writing. Prices appear to be on the eve of a stride upward. Bagging is not doing so well. There was a falling off in demand the past week but prices have not changed.

Waste Paper

Waste paper, as far as the better grades are concerned, seem to be moving steadily but the lower grades are slow. The mills, however, are showing a keener interest than for a long time, all of which speaks promise for the near future.

Twine

The twine market which has been about as flat as a pan cake has picked up somewhat. It is still far from what it should be but the pick-up of the past week leads the dealers to believe that the back of the dull period has been broken and that buying on a much more liberal scale will materialize very soon.

New York Trade Jottings

Warren B. Bullock of the American Paper and Pulp Association is taking his annual vacation. He will be absent from the association headquarters until July 20.

* * *

Derschuch & Co. has leased for Christian Ritter the four story loft building at 448 Washington street, near Watts street, to the Seventh Avenue Paper Stock Company. The lease is to run for ten years at $25,000 aggregate rental.

* * *

Kennelly Paper Company, Inc., of 501 Fifth avenue, have no complaint to make about bad business. They report that their sales during the first five months of the year amounted to $151,383.83 more than the sales for the corresponding period of last year.

* * *

The Joint Committee of the American Wood Pulp Importers, the Technical Association of the Pulp and Paper Industry and the American Paper and Pulp Association has approved the application of Abbott A. Hanks, Inc., 624 Sacramento street, San Francisco, Cal., for testing as a chemist for sampling and testing wood pulp.

Mills Are Much Interested in Safety

A. P. Costigane, secretary-engineer of the Ontario Pulp and Paper Makers' Safety Association, returned recently to Toronto after paying a visit of inspection to the Spanish River mill at Sault Ste. Marie, Provincial mill at Port Arthur, Thunder Bay Paper Company at Port Arthur, Fort William Paper Company at Fort William, Great Lakes Paper Company at Fort William, the Detroit Sulphite Pulp Company, Fort Wililam; the Keewatin Lumber Company at Kenora and the Fort Frances Pulp and Paper Company at Fort Frances. He says that, in every case, he found accident prevention work receiving due attention, particularly so in the mills of the Spanish River Pulp and Paper Company, where the accident record has been greatly reduced since the inauguration of a permanent safety system. Last year these mills secured third place in the accident prevention competition for the shield and flag and it is the intention this year to leave no stone unturned to head the list. The Provincial Paper Mills, the Thunder Bay Paper Company, the Keewatin Lumber Company, the Fort Frances Pulp and Paper Mills, etc., are all striving earnestly to keep down their accidents to a minimum, says Mr. Costigane.

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With our enlarged new equipment we can now furnish Paper Manufacturers with endless felts up to 86 feet in length.

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Paper Mill near New York City. Fully equipped with two Fourdrinier Machines trimming 78". Ample Beater and Jordan Capacity. Producing 25 tons 24 hours of book, waxing and specialties. Good shipping facilities. Fine manufacturing water and 650 H.P. water power. Buildings brick and stone. Price and terms very reasonable.

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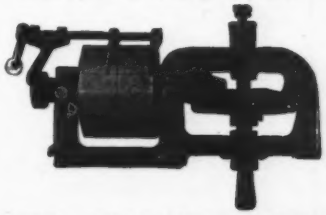
AGITATOR DRIVES



Six Stock Sizes Special Designs "NETT-CO" line is complete from smallest to largest.

NEW ENGLAND TANK & TOWER CO.

30 CHURCH ST., N. Y. EVERETT, MASS.

Miscellaneous Markets

OFFICE OF THE PAPER TRADE JOURNAL,
WEDNESDAY, July 9, 1924.

No let up in the slackness of the chemical market materialized during the past week and nothing new occurred to brighten the outlook. The one encouraging fact from the manufacturers' standpoint is that most of them have seen fit to curtail production and stick to prices which are considered equitable rather than flood the market with an overstock and engage in a wild scramble to get rid of it at any price. This has been particularly true in regard to such chemicals as are of a perishable nature so that there is no stock going to waste and little or no distress tonnage. There has been some distress tonnage on the market for some time but this has practically been disposed of so that the market may be considered today as free of it. The paper industry continues to be an exceedingly lackadaisical buyer and other sources of demand are exceedingly quiet. The hand to mouth buying becomes even more hand to mouth as time goes by, contract business is not being taken out and new business is a distinct rarity.

BLANC FIXE.—The supply of blanc fixe is very limited and is being closely held. Such orders as are coming to hand are meager. There has been no change in price, the present quotation being from $75 to $80 a ton for the powder and from $50 to $55 for the pulp.

BLEACHING POWDER.—The bleaching powder manufacturers have cut down their production so that they may be able to keep the tonnage moving in line with the actual demand. This has been a necessary move on account of the hot weather and the disastrous effect of the heat on this commodity. The price still stands at from 1.90 to 2.15 cents a pound.

CAUSTIC SODA.—The demand for caustic soda which has been liberal in view of general conditions and which has largely come from sources other than the paper industry is now suffering somewhat of a decline. The price is from 3.10 cents a pound on a flat basis at the works.

CASEIN.—There has been no change in casein. It is holding its own. Some distress lots of domestic which were thrown on the market a short time ago has been taken up so that the market is free of that incumbrance. It is quoted at from 10½ to 11 cents a pound.

CHINA CLAY.—China clay, thanks to the pottery trade, continues to move steadily although the demand is not normal and does not improve as time goes on. It is quoted at from $16 to $20 a ton for the imported grades and from $12 to $15 a ton for the domestic grades.

CHLORINE.—Chlorine has undergone no change during the week. The call for it is very weak but the price holds at from 4.50 to 7.00 cents a pound in tanks.

ROSIN.—There is little trading in rosin. The dealers say that the demand is greatly under what it should be at this particular time. The price still holds at from $5.75 to $5.80 for 280 pounds.

SALT CAKE.—The price of salt cake this week went to a higher notch or back to the price it held previous to the drop of a week ago. That drop was due it is said, to some distress tonnage which appeared in the market. This supply has been caught up, there is only a limited supply on hand today and consequently the price has gone up to a higher figure. It is expected that it will rise to a still figure before many days. The price is from $17 to $20 a ton.

SODA ASH.—Soda ash became more than ever a target for bad business during the past week. The demand has fallen off considerably but the manufacturers are holding to their schedule. The price is 1.38 cents a pound on a flat basis at the works.

SULPHATE OF ALUMINA.—Slow demand for sulphate of alumina has become still slower. Contract cutting is quite general in this commodity. There is little or no buying interest. The price is still from 1.30 to 1.35 cents for the commercial grade at the Eastern works and from 2.15 to 2.35 cents a pound for iron free.

SULPHUR.—Sulphur keeps on going down the scale as far as demand is concerned. The price, however, holds at from $18 to $19 a ton.

TALC.—Talc has no more life than it has had for some weeks and yet the demand is considered fair when it is compared with the demand for some of the other commodities. It is still selling at from $16 to $17 a ton.

STANDARDS FOR AREA AND WEIGHTS

(*Continued from page* 58)

Size	Old Ream Weight 500 Sheets	New Ream Weight 500 Sheets	New Weight 1,000 Sheets	25x40 Substance Number
TRANSLUCENT				
22½x28½ 3 ply	194	192.3	*384.7	600
22½x28½ 4 ply	226	224.5	449	700
22½x28½ 5 ply	265	272.5	545	850
TOUGH CHECK				
22x28 3 ply	222	215.6	431.2	700
22x28 4 ply	308	308	616	1,000
22x28 6 ply	422	431.2	862.4	1,400
22x28 8 ply	500	492.8	985.6	1,600
RAILROAD				
22x28 4 ply	308	308	616	1,000
22x28 6 ply	406	400.4	800.8	1,300
22x28 8 ply	479	492.8	985.6	1,600
THICK CHINA				
22x28	178	177.1	354.2	575

* The weight per 100 sheets can be determined by pointing off one place.

STRAW, CHIP AND COMBINATION BOARDS

On Straw, Chip and Combination Boards, the present base size is 26 x 38, or 988 square inches. This is so close to the 25 x 40 size, or 1,000 square inches, it is suggested that the manufacturers drop 26 x 38 as the base size and adopt the 25 x 40 size, resulting in a more uniform scale of weights, and simplfying to a minimum the calculation of any number of sheets from 1 to 1,000.

The proposed 25 x 40 Substance Numbers are given below, together with a list of the old numbers for comparison.

	1,000 Sheets	Old Numbers
25x40	350	130
25x40	425	120
25x40	450	110
25x40	500	100
25x40	525	95
25x40	575	90
25x40	600	85
25x40	625	80
25x40	675	75
25x40	725	70
25x40	775	65
25x40	850	60
25x40	900	55
25x40	1,000	50
25x40	1,100	45
25x40	1,250	40
25x40	1,450	35
25x40	1,700	30
25x40	2,000	25
25x40	2,500	20

The new numbers indicate the weight of 1,000 sheets 25 x 40. The weight of 100 sheets is obtained by pointing off one place, the weight of 10 sheets by pointing off two places, etc.

Prior to Mr. Willson's address, short addresses were made by Messrs. R. M. Mudgett and R. F. Dutcher, of the Strathmore Paper Company, outlining the work done by the Connecticut Valley Local Division of the Cost Association, during the past season, and the methods used by the officers in arranging meetings.

The resignations of Messrs. R. F. Dutcher and C. H. Gardner were received with regret, and the following appointed members of the Executive Committee, for the forthcoming year: M. F. Peterson, United States Envelope Company; R. M. Mudgett, Strathmore Paper Company; J. T. Daly, American Writing Paper Company; A. Beston, Holyoke Card and Paper Company; A. H. King, Croker-McElwain Company.